

## TECHNICAL MANUAL

# AEROSPACE EQUIPMENT MAINTENANCE GENERAL POLICIES AND PROCEDURES

Prepared By: Automated Technical Order System (ATOS)

THIS PUBLICATION SUPERSEDES TO 00-20-1, DATED 15 AUGUST 1998.

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Dates of issue for original and changed pages are:

Original ..... 0..... 1 May 2000

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 52, CONSISTING OF THE FOLLOWING:

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## CHAPTER 1

### GENERAL

#### 1-1 PURPOSE.

1-1.1 This Technical Order (TO) establishes the policies for use of the 00-20-series TOs. It also implements the policies of AFI 21-101, MAINTENANCE MANAGEMENT OF AIRCRAFT, AFI 21-116 C-E Maintenance and AFI 11-301, AIRCREW LIFE SUPPORT EQUIPMENT (ALSE) PROGRAM. They prescribe requirements for the maintenance program in aircraft, missiles, aerospace vehicles/equipment, nuclear weapons, Test Measurement and Diagnostic Equipment (TMDE), ground Communications-Electronics (C-E) equipment, trainers, training equipment, life support equipment, and all related Support Equipment (SE). Major commands may supplement 00-20-series technical orders as required. For the purpose of the 00-20-series Technical Orders, the term AFMC Single Manager (SM) includes System Program Directors (SPM), Product Group Managers (PGM), Supply Chain Managers (SCM), and Materiel Group Managers (MGM).

#### NOTE

In the 00-20-series TOs, the designation, GP/CC is used to represent the Logistics Group Commander, Operations Group Commander, Director of Maintenance, or Air Refueling Group Commanders, as applicable to the organizational structure of the unit. At test sites or activities which do not have a Logistics Group Commander (LG), it will be the responsibility of the Chief of Maintenance, Chief of Test Force Teams or Installation Team Chief to assure that the criteria of this TO are complied with.

1-1.2 All changes to this technical order must be forwarded through the appropriate MAJCOM.

#### 1-2 REQUESTS FOR EXEMPTIONS.

Forward requests for permanent or temporary exemptions from any provisions of this group of technical orders through command channels to USAF/ILMM for approval. Justify the need for the exemption in each request. Refer to TO 00-20-2 for Maintenance Data Documentation system (MDD) exemptions.

#### 1-3 RECOMMENDATIONS FOR TECHNICAL ORDER CHANGES.

Submit change requests by AFTO FORM 22, TECHNICAL IMPROVEMENT REPORT, in accordance with TO 00-5-1.

#### 1-4 ADDITIONAL REPORTING REQUIREMENTS.

Contractors, Air Logistics Center (ALC), or other government agencies, are not authorized to levy additional MDD or documentation requirements on operating activities without prior approval of HQ USAF/ILMM, HQ AFMC/ENBA, and the headquarters of the affected major command (MAJCOM). MAJCOMs may levy additional MDD reporting requirements for their Command. Disseminate approved additional reporting requirements only in technical orders or through the headquarters of the MAJCOM concerned. Requests to base-level personnel for recurring reports or documentation requirements without prior approval will be returned without action.

#### 1-5 FURNISHING MAINTENANCE DATA TO CONTRACTORS.

Air Force activities will not furnish maintenance data in any form to contractors unless the applicable MAJCOM or Field Operating Agency or Weapon System Manager as appropriate has granted approval.

#### 1-6 CONTRACT MAINTENANCE OPERATIONS.

When USAF equipment, including bailed aircraft and Government Furnished Property (GFP), is undergoing contract maintenance, the contractor is responsible for conforming to the maintenance requirements and procedures prescribed in the technical orders incorporated in the provisions of the contract.

1-6.1 The contractor will provide the Air Force contract administration office with a list of personnel who are authorized to certify that an aerospace vehicle or equipment is safe for flight or use. The listing will specifically identify the personnel who are authorized to:

1-6.1.1 Sign exceptional releases.

1-6.1.2 Downgrade Red X or Red W conditions.

1-6.1.3 Sign off Red X or Red W symbol.

1-6.1.4 Certify operational capability.

1-6.1.5 Perform functional check flights (if applicable).

1-6.2 Contractors will keep the lists to a minimum consistent with requirements to assure continuity of daily operations and will immediately notify the contract administration office of any changes.

1-6.3 The contractor will develop and maintain a program to assure that personnel are trained in the areas specified in the contract. The program will have provisions for contractor certification and at least an annual recertification of personnel authorized to perform the specific functions or to operate various support equipment.

1-6.4 The contract administration office will ensure that the contractor performs the maintenance management and documentation requirements prescribed in these Technical Orders incorporated as provisions in the contract.

#### **1-7 APPLICABLE DOCUMENTS.**

Specific documents (automated or manual) are required to support the maintenance program for each of the major categories of equipment. The required documents and documentation procedures are covered individually in succeeding technical orders. Maintenance Data Documentation (MDD)

procedures and historical documents common to more than one type of equipment are covered independently to provide a more usable set of publications. For the purposes of the 00-20-series TOs, the term "Documentation" may refer to hard copy forms, computer equivalent produced hard copy, or Air Force approved electronic data bases available for general use. Transfer of documentation may be by hard copy when computer to computer electronic transfer is not available.

#### **NOTE**

Except when directed by SM, Air Force operating organizations are not required to maintain Navy log books. Applicable information provided in non-USAF log books or documents not prescribed for Air Force use will be verified and transferred to appropriate Air Force documents. Aircraft maintained to FAA certification may use FAA Log Books.

#### **1-8 OPTIONAL DOCUMENT APPLICATION.**

The TOs in Appendix B prescribe the mandatory use of specific documents. Optional uses or applications of these documents may be authorized in other Air Force directives. The MDD forms will only be used as prescribed in the 00-20 series technical orders.



## CHAPTER 2

### ADMINISTRATIVE REQUIREMENTS FOR MAINTENANCE DOCUMENTS

#### 2-1 GENERAL.

This chapter prescribes general requirements and procedures for the administration of maintenance documents. It specifies filing, disposition, and general documentation requirements. Specific instructions pertaining to form entries are covered in subsequent technical orders of this group.

#### 2-2 USE OF PRINTED CHARACTERS.

All entries on the maintenance and historical documents, with the exception of signatures or personal stamps, will be typed or printed when available, electronic signatures are authorized. Signatures will also be typed or printed if copied by an individual other than the original signer. The handwritten entries on maintenance documents will be made in black (pencil or ball point pen), unless otherwise specified. Manual forms entries require a minimum signature for maintenance personnel certifying entries on forms governed by this TO. The minimum signature will be first name initial, last name, and employee number or equivalent. (Exception: Contractors will use their FAA certification number). AFMC Depots may use a production stamp in place of the employee number. Electronic signatures may be used in lieu of the above requirements. Maintenance documents will be legible, complete, correct, and clean.

#### 2-3 USE OF ABBREVIATIONS.

Abbreviations in this series T.O.s may be used for any word or term frequently used in making entries on documents.

#### 2-4 TRANSFER OF DOCUMENTS.

When a weapon system, support system or equipment is transferred to another organization, the responsible maintenance or supply supervisor, as applicable, will ensure that all maintenance, historical, and Time Compliance Technical Order (TCTO) documents or computer generated equivalents, either accompany the equipment or are forwarded to the new activity in hard copy or electronically, no later than the same day that the transfer is affected. When auxiliary power units; helicopter rotor blades, transmissions, and/or gear box assemblies; end items of Support Equipment (SE); and weapon or support system components

which require separate historical files are transferred as separate units, the applicable documents will be placed in a waterproof envelope and will be securely attached to the component, item, or container. If the item is not packaged or crated, the waterproof envelope will be securely attached to the item in a location that will provide the best protection from exposure to the elements and prevent loss during handling. Computer to computer document transfer is preferred.

#### 2-5 FILING.

Establish and maintain an individual historical file, in accordance with AFI 37-138, for each aerospace vehicle or designated equipment per applicable Air Force directive. Centrally locate historical document files in the documentation activity of the unit possessing the weapon system, support system or equipment. On-line computer systems are considered centrally located files in the 00-20-series TOs. The GP/CC may authorize decentralized files. When files are decentralized the documentation supervisor will provide assistance to the work centers as prescribed in major command 21-series instructions.

2-5.1 Include hard copy or electronic historical document files for subsystems and components in equipment end item files, or maintain them in a separate file. Consolidate files for non-powered Aerospace Ground Equipment (AGE), configuration-managed training equipment, and non-complex items into a single folder or a series of folders. Each individual file will contain historical documents, operational data, maintenance status documents, and reports that reflect current status.

2-5.2 Examples of the documents required in a historical file are as follows:

2-5.2.1 AFTO FORMS 781 series.

2-5.2.2 AFTO FORMS 95, 244, 245, 349, and 427 or 428.

2-5.2.3 Non-destructive inspection (NDI) documents or resume reports that are current, and X-ray films, if applicable.

2-5.2.4 Functional check flight checklist/worksheets.

2-5.2.5 Automated products.

2-5.3 Computer generated forms in these files may contain a difference in format, but must contain all required information.

## 2-6 DISPOSITION OF DOCUMENTS.

Dispose of maintenance documents in accordance AFMAN 37-139 and this technical order.

2-6.1 Disposal of documents for aircraft or missiles that are involved in accidents or incidents which result in damage to private property, loss of life, or serious injury to personnel as defined in AFI-51-503, Aircraft, Missile, Nuclear and Space Accident Investigations is directed in AFI 37-138.

2-6.2 When a ground launched missile is expended or destroyed, forward status and historical documents prescribed by the 00-20-series technical order; to the SM (TO 00-25-115) within 10 working days after the occurrence. Send status and historical documents for reentry vehicles or systems to the Directorate of Nuclear Weapons, SA-ALC/NW. In the event an accident board not related to AFI 51-503 impounds documents of a ground launched missile, forward the documents to the SM within 10 working days after release from the board. This paragraph does not apply to expended drones.

2-6.3 To support preparation of Quality Deficiency Reports (DR), TO 00-35D-54, the DD FORMs 1574, SERVICEABLE TAG-MATERIEL for items having a high early age failure rate, may be retained IAW AFI 37-183 for a period of 30 days. Establish local procedures for the selection of the items and for the location, filing, and maintenance of supporting documents.

## 2-7 MISSING DOCUMENTS.

When equipment is received and the historical documents are missing or contain incomplete information, the receiving organization will immediately notify the shipping/losing organization. The shipping/losing organization will promptly forward the missing documents or provide all available information for completion of the documents or for initiation of new documents. When the documents cannot be located, contact the applicable ALC SM for disposition instructions with an information copy to MAJCOM.

## NOTE

For FSCAP items refer to TO 00-20-5.

## 2-8 MAINTENANCE OF DOCUMENTS DURING EXTENDED STORAGE OF WEAPON SYSTEMS, SUPPORT SYSTEMS OR EQUIPMENT.

Maintain documents for weapon systems, support systems or equipment in extended storage as prescribed for stored equipment in accordance with applicable 00-20-series TO. Maintain the documents for stored equipment with the equipment or in the appropriate documentation activity or system. Prepare up-to-date maintenance and historical files for each weapon system, support system or equipment being readied for return to service.

2-8.1 When engines or other packaged equipment are in extended storage at a depot facility, the responsible inspector will record all applicable technical orders released during the storage period. Engine or equipment containers need not be opened solely to make entries on the maintenance or historical documents.

2-8.1.1 For stored engines, all applicable engine configuration management system ECMS/TCTO data will be tracked via the Comprehensive Engine Management System (CEMS) for subsequent review, or transfer to the maintenance and historical documents as required. Forward the appropriate engine configuration management system ECMS/TCTO data reflecting current applicability.

2-8.1.2 For other packaged equipment, post these entries on the applicable condition tag, or label attached to the item or container for subsequent transfer to the maintenance and historical documents. Forward the ECMS/TCTO data reflecting current applicability.

2-8.2 When weapon systems, support systems or equipment are removed from storage, the removing organization will review CEMS ECMS/TCTO data, or the maintenance and historical documents, as required, to ensure that they are current and accurate, and that all outstanding TCTOs are listed on the applicable forms. Maintenance requirements regarding removal of aerospace vehicles or equipment from storage are contained in Chapter 5.

2-8.3 When weapon systems, support systems or equipment are maintained in extended storage at an organization or activity, in accordance with TO 1-1-17 or similar directives, the GP/CC may request a waiver from the TCTO manager on a case-by-case basis. All waivers must be maintained in the aircraft or equipment's historical documents.

**2-9 PROCESSING OF DOCUMENTS DURING DEPOT MAINTENANCE.**

Documents will be processed in accordance with TO 00-25-4 and the 00-20-series TOs. Personnel preparing organic or contract work statements will assure that the provisions of these TOs are included in all applicable maintenance contracts.

**2-10 DATE ENTRIES.**

Manually record all dates on the forms prescribed in the 00-20-series Technical Orders by eight digits in the order of year, month, and day. Example: YYYYMMDD, 20001208 for 8 Dec. 2000.

Approved automated forms in information systems may deviate from this procedure based upon system standards. Hand written formats may follow the format of the automated system.

**2-11 ELECTRONIC SIGNATURES.**

Electronic signatures to sign off maintenance documentation are approved for maintenance automated systems where the records are protected with passwords and IDs, and authorization is password limited to those individuals as outlined in the 00-20-series TOs or other directives.



## CHAPTER 3

### SYMBOLS AND THEIR USE

#### 3-1 PURPOSE AND USE.

The symbols described in this section are established for use on maintenance documents to make important notations instantly apparent. They indicate the condition, fitness for flight or operation, servicing, inspection, and maintenance status of the aerospace vehicle or equipment unit. These symbols and their use must be fully understood in order to make proper entries on maintenance documents.

3-1.1 Entries in the "SYM" block will be made in red to make the important warning signals stand out clearly, except for the black last name initial. The Red X represents the most serious possible condition. The Red W the next most serious condition, the Red Dash the next most serious, and the Red Diagonal the least serious condition. Computer-generated forms symbols are printed in black, but may be overwritten in red at MAJCOM option. All manually entered symbols must be entered in red, except black name initials.

3-1.2 The instructions for completing each of the various maintenance, discrepancies, and work documents contain more specific applications of symbols.

#### NOTE

Do not use other means for identifying aircraft/equipment discrepancies other than those outlined in this technical order unless approved by HQ AFMC/LGI and HQ USAF/ILMM.

#### 3-2 RED X.

A Red X indicates that the weapon system, support system, or equipment is considered unsafe or unfit for flight or use and that the weapon system, support system, or equipment will not be flown or used until the unsatisfactory condition is corrected or symbol is cleared.

3-2.1 Equipment with a Red X condition may be operated as necessary to troubleshoot or repair the discrepancy.

3-2.2 For TCTOs, use a Red X to ground or remove equipment from service upon receipt of an immediate action TCTO, after expiration of a TCTO compliance period, when work is started on urgent action and safety TCTOs, and within the

time limits established by TO 00-5-15. This is applicable to commercial service bulletin equivalents.

3-2.3 When the Red X has been applied, inspection of work performed to correct the discrepancy and the accomplishment of an audit of all related entries, for completeness and accuracy, are required by maintenance personnel authorized to clear a Red X.

3-2.4 No one will authorize or direct an aircraft to be flown, a missile to be launched, or equipment to be used until the Red X has been properly cleared in accordance with applicable technical data.

3-2.5 Except for ground launched missiles, use of a Red X will be mandatory for time-change items as prescribed in tables 4-1 and 4-2.

3-2.6 The repairs made or work accomplished to remedy dangerous conditions indicated by a Red X symbol will be inspected by maintenance personnel who are delegated such authority. When a weapon or support system is in an unsafe condition and a depot or contract field team is dispatched, the chief of that team will clear the Red X for only the work the team has corrected, if specifically authorized by the dispatching organization. Before placing an initial over the symbol, inspect the work performed to clear a Red X. This ensures that the work has been properly accomplished and that nothing has been overlooked. When the work is found to be satisfactory, inspectors will enter their minimum signature or personal stamp in the "INSPECTED BY" block and their last name initial over the symbol. Special procedures for clearing Red X and Red W symbols are outlined in the following instructions.

3-2.6.1 Inspectors who participate in accomplishment of the repair work and who are authorized to clear Red X symbols will enter their signature and grade in the "INSPECTED BY" block, provided that another member of the maintenance crew accomplishing the work signs the "CORRECTED BY" block. This maintenance technician must be involved in the work required to complete the task. In addition, the inspector and the maintenance technician who signs the "CORRECTED BY" block, must have the opportunity to accomplish, monitor, or verify the correct completion of the

work. Work accomplished by an inspector, in any other way, will not be verified in this manner and will require a check by another inspector. **EXCEPTION:** Certified mechanics and certified master mechanics may sign off their own work according to applicable MAJCOM guidance.

3-2.6.2 When operations are conducted in locations where qualified maintenance personnel are not available, the home station GP/CC will designate an individual to sign off the Red X. The designated individual at the location may accomplish the required work and clear the Red X by entering signature and grade in the "CORRECTED BY" block, initialing the "INSPECTED BY" block, and placing the last name initial over the symbol.

3-2.6.3 When an immediate or urgent action TCTO, equivalent commercial service bulletin, or special inspection, prescribes "INSPECTION ONLY", and the inspection is accomplished by an inspector designated to clear Red X symbols, the symbol may be cleared by the inspector by entering their minimum signature in the INSPECTED BY block and their last name initial over the symbol. The "CORRECTED BY" block will be left blank.

3-2.6.4 When a weapon system, support system, or equipment is placed on a Red X for accomplishment of a scheduled inspection, the Red X is cleared by an inspector who will enter a statement in the "CORRECTIVE ACTION" block indicating the required inspection has been accomplished in accordance with the applicable technical order, enter their signature and grade in the "INSPECTED BY" block and place their last name initial over the symbol. This entry indicates the individual has reviewed all applicable maintenance documents and that the inspection requirements contained in the scheduled inspection and requirements manual have been accomplished. If not accomplished, due to lack of parts, test equipment etc., this entry indicates these inspection requirements are entered in the AFTO FORM 781A or AFTO FORM 244 on a Red Dash.

3-2.7 Use a Red X when it is suspected or known that an aircraft or piece of equipment has become contaminated with a nuclear, biological or chemical contaminant and may be hazardous to personnel. For specific procedures on clearing see TO 00-20-5.

3-2.8 Use a Red X when egress or life support (ALS) personnel perform maintenance or an inspection on the escape system, that involves disassembly and subsequent reassembly of a component or sub-component of the escape system. A separate Red X entry is required for an egress final when required by applicable technical orders.

When technical orders do not specify an egress final, MAJCOMs may detail such requirements as necessary. A Red X will be used to indicate a complete CAD/PAD verification is required during aircraft transfer/acceptance inspections. B-1B and B-2A aircraft are exempt.

3-2.9 Use a Red X when an inspection of installed life support equipment becomes past due. **EXCEPTION:** Those item(s) coming due while an aircraft is on alert status or away from home station. These are placed on a Red Dash until the aircraft goes off alert or returns to home station before upgrading to a Red X.

3-2.10 Use a Red X when installed pre-positioned aircrew life support equipment (ALSE) have not been inspected and repacked when 90 days has accrued since arrival at gaining unit. Refer to paragraph 4-7.2.

### **3-3 DOWNGRADING A RED X FOR ONE-TIME FLIGHT.**

An aircraft with a Red X condition may be released for a one-time flight provided the aircraft is or can be made airworthy under tightly controlled and specified operating conditions. Such action must be authorized by the owning GP/CC or his/her designated official or, the SM, through the on-site chief of an AFMC repair team (when aircraft is possessed by AFMC), in accordance with TO 00-20-5. The following AFTO FORMs 781A and 781H documentation are required to downgrade a Red X and release the aircraft for a one-time flight.

3-3.1 To downgrade the Red X on the AFTO Form 781A, the authorizing official or representative authorized to downgrade Red X conditions enters in the corrective action block statement essentially as follows: "Red X changed to Red Diagonal for the purpose of one-time flight to (name destination station)" and, if applicable, "with enroute stop at (name station)." If the authorizing official is not available to sign the "INSPECTED BY" block, continue the corrective action statement: "One-Time flight authorized by (Name, Rank, Title, Org.). (See Page No., Block No.)." The on-site person authorized by the downgrading official will downgrade the Red X, sign the "Inspected By" block, and initial the "SYMBOL" block. In the next open block of the AFTO Form 781A, enter a Red Diagonal in the "SYMBOL" block and current date in "Date Disc" block. In the "Discrepancy" block, enter the original discrepancy with a descriptive statement of temporary repair or inspection accomplished to make the aircraft airworthy for one-time flight. Also, enter restrictions to normal flight operation of systems and/or equipment, such as gear operation, pressurization,

altitude or airspeed limits, etc. Sign the "DISCOVERED BY" block (normally, the same person that downgraded the Red X).

3-3.2 When the aircraft arrives at the destination, the Red Diagonal will be upgraded to a Red X.

### **3-4 CONVENTIONAL MUNITIONS AND/OR AIR-LAUNCHED TACTICAL MISSILES.**

3-4.1 For mechanized missile records, missiles that are not serviceable will have the appropriate symbol (Red Dash, Red Diagonal, Red X) entered on the page containing the information for the particular all-up-round serial number. Additional information required is date discovered, discovered by, supply document number (as required), discrepancy, and Job Control Number (JCN). Upon correction of the discrepancy, the qualified individual that corrects the discrepancy signs their name initial, last name, and grade, enter the date corrected; and for Red Dash or Red Diagonals initial over the symbol. For Red X, the individual authorized to clear the Red X signs their first name initial, last name, and grade, and initial over the Red X.

3-4.2 When a periodic inspection has a Red Dash entered because of an overdue condition and the next periodic inspection becomes due, enter a Red X on the appropriate form.

### **3-5 RED W (GROUND-LAUNCHED MISSILE USE ONLY).**

A Red W symbol for ground launched missiles is used to reflect a condition of an item of AGE, SE, or Real Property Installed Equipment (RPIE) that is inoperative for its intended use and requires careful attention: (1) because of a condition at a missile site that will not prevent successful launch, flight impact, or command and control of the launch or flight; (2) because of a condition off site that will not prevent the operation of a major end item of powered or non-powered SE; and (3) because of a condition at a missile trainer that will not prevent its operation.

### **3-6 RED DASH (NOT APPLICABLE TO GROUND-LAUNCHED MISSILES).**

3-6.1 The Red Dash indicates that a required special inspection, accessory replacement, operational check or functional check flight is due. The Red Dash also indicates that a scheduled inspection (preflight, post flight, basic post flight (BPO), home station check (HSC), etc.) is overdue (time or other factors will not allow accomplishment of the inspection before flight). Refer to the applicable weapon system TO for additional guidance. It may

also be used for in-progress inspections when conditions (work stoppage, crew change, etc.) necessitate an entry in the AFTO FORM 781A, as determined locally. The presence of the symbol indicates that the condition of the equipment is unknown and that a more serious condition may exist. Correct this condition as soon as possible by performing the required inspections, accessory replacement, operational check, functional check flight, and/or any necessary maintenance.

3-6.1.1 The Red Dash indicates a weapon system inspection found in the applicable -6 TO is overdue. This inspection must be accomplished as soon as the condition preventing its completion no longer exists, but no later than during the next scheduled inspection (60 Day/180 Day/HPO/HSC/ISO/Phase or equivalent). Inspections carried forward to the next HPO/HSC/ISO/Phase will be upgraded to a Red X.

3-6.2 Use the Red Dash symbol to indicate that an aircraft listed in TO 00-25-4, Table 1-1, is overdue programmed depot maintenance (PDM). Upgrade the Red Dash to a Red X 90 days after assignment unless an extension has been obtained from the appropriate SM. Refer to TO 00-25-4 for detailed instructions.

3-6.3 Time-change items, other than life sustaining items identified in Section Three of the appropriate -6 series TOs, continued in use beyond their scheduled replacement will be carried on a Red Dash until upgraded to a Red X (Table 4-1 Rule 2). Begin use of the Red Dash symbol at the hourly postflight, minor, phase, periodic or major inspection nearest to the replacement time. For aircraft under the phase or periodic concept, which do not have an hourly postflight, the use of the Red Dash will begin upon expiration of the items replacement time.

3-6.4 Sign off Red Dash discrepancies in the "INSPECTED BY" block on all maintenance discrepancy work documents (examples are 781As, 244/245, etc.). The individual who completed the corrective action for the discrepancy in the maintenance document will accomplish this.

3-6.5 Life sustaining items not replaced at the actual replacement time or date, and the nearest scheduled inspection has not come due, will be placed on a Red X (Table 4-1, Rule 3). Those aircraft with items coming due while on alert status or away from home station will place the item due on a Red Dash and be allowed to return home before upgrading to a Red X. Service life requirements for ALSE items can be found in specific TOs (e.g. TOs 14D, 14S, 15X, etc.). Units should schedule cartridge actuated device/propellant actuated device (CAD/PAD) items for replacement at

the nearest scheduled inspection prior to expiration of service life unless excessive time remains to expiration and apply Rule 4 of Table 4-1. The nearest scheduled inspection for time changes is the hourly postflight, minor phase, periodic, or major inspection nearest to the replacement due time.

3-6.6 Service limits of life sustaining CAD/PAD items will not exceed the limits established within the 11A and 11P series TOs.

3-6.7 For C-E, SE, and trainers, a red dash symbol will be upgraded to a Red X for a deficient condition not corrected prior to the next periodic inspection due date. The Red X will be cleared using instructions in this TO.

### 3-7 RED DIAGONAL.

The Red Diagonal indicates that an unsatisfactory condition exists on an aircraft or equipment; but, is not sufficiently urgent or dangerous to warrant grounding of the aircraft or discontinuing use of the equipment. The Red Diagonal will be a straight line from the lower left to the upper right corner of the symbol block (see TO 00-20-6 for instructions pertaining to ground-launched missiles). When a maintenance technician discovers an unsatisfactory condition that warrants a Red Diagonal, write a description of the condition on the appropriate forms. The documentation is necessary to record a complete history of the work accomplished and required to keep the weapon system, support system and equipment in an operational condition.

3-7.1 Enter a Red Diagonal in the appropriate maintenance documents immediately upon receipt of an urgent action or Category I, routine action safety modification TCTO or commercial equivalent.

3-7.2 List routine action TCTOs (depot and base level) or commercial equivalents which affect or restrict operational performance or operating limitations or procedures individually in appropriate maintenance documents by the applicable TCTO number.

3-7.3 When compliance with routine action Category I TCTOs or commercial equivalents for which kits or parts are available depends upon prior compliance with depot TCTOs, time computation for application of the Red Diagonal does not begin until the depot work is accomplished. After the depot work is accomplished, apply the Red Diagonal at the specified number of days in the category I TCTO.

### 3-8 CLEARING RED SYMBOL ENTRIES.

The black last name initial entered over the symbol in the "SYMBOL" block of the maintenance documents indicates that the individual whose name appears in the signature block related to the particular entry has accomplished the required maintenance or has inspected the equipment, work accomplished, or system specified and has found its condition satisfactory. When the initial is entered, consider the discrepancy indicated by the symbol cleared. For ground-launched missile procedures, refer to TO 00-20-6. Any individual who signs off a red symbol for a specific maintenance task must be familiar with the task and knowledgeable of the technical orders required to accomplish the task.

### 3-9 CHANGING SYMBOLS AFTER AN ORIGINAL ENTRY.

Entry of a Red X, Red W, or Red Diagonal symbol on a maintenance document by an individual represents their opinion as to the seriousness of the defect. Therefore, no individual will be directed to change a symbol that has been entered.

3-9.1 Any maintenance person who determines a condition is more serious than previously entered may upgrade that symbol by drawing a line through the name of the individual who made the entry, and entering their signature, grade, and employee number, above or beside the "DISCOVERED BY" block. Automated forms may not have a "DISCOVERED BY" block. If this is not available, the individual will sign in the "DISCREPANCY" block.

3-9.2 If any supervisory personnel believe that the condition is less serious than represented by the symbol, the matter will be brought to the attention of the GP/CC, equivalent contractor representative, or any personnel specifically authorized by the GP/CC to downgrade red symbol entries (for exception see paragraph 3-3). If the symbol is downgraded, the individual who made the decision will annotate their action in the "CORRECTIVE ACTION" block for the particular defect. This entry will read essentially as follows: "Symbol downgraded from a Red X to a Red Diagonal. Reentered page (No.), item (No.)." Individuals who enter the remark assume responsibility for their action by initialing over the symbol and entering their signature, grade and employee number, in the "INSPECTED BY" block. Reenter the same entry for the discrepancy, the new symbol, and the printed first initial, last name and grade of the person originally discovering the discrepancy in the next open block of the applicable form and include an entry to read essentially as follows: "Symbol changed from a Red X to a Red Diagonal



on (date) by (employee signature, grade, employee number and organization)." This entry remains with the discrepancy until it is corrected.

3-9.3 Symbols/initials once entered will never be erased even if entered in error. Correct erroneously entered symbols/initials as follows:

3-9.3.1 When a Red Dash or Red Diagonal is entered in error on a discrepancy or work document, the individual discovering the incorrect entry enters the statement in the "CORRECTIVE ACTION" block: "Symbol/Initial entered in error, discrepancy and correct symbol/Initial reentered on page \_\_\_, item \_\_\_, " or "Symbol entered in error, no discrepancy exists," and enter their minimum signature. When required, reenter the discrepancy and correct symbol in the next open "DISCREPANCY" block on the form.

3-9.3.2 If the erroneous symbol is a Red X or a Red W, the individual discovering the incorrect entry will enter the applicable statement identified in paragraph 3-9.3.1. If they are authorized to clear these symbols, they will complete the "INSPECTED BY" block and initial over the symbol. If they are not authorized to clear these symbols, they will sign the "CORRECTED BY" block. An individual authorized to clear these symbols initials over the symbol and completes the "INSPECTED BY" block.

3-9.3.3 If the erroneous item is an initial, clear the discrepancy by entering "Initial entered in error, see Page \_\_\_ Item \_\_\_", sign the "CORRECTED BY" block and reenter the discrepancy in the next open block.

3-9.4 When an uncleared condition originally assigned a Red Diagonal becomes more serious after additional flights or usage, upgrade the symbol for the original entry and appropriately describe it with a remark and minimum signature in the "DISCREPANCY" block preceded by a date entry. When a Red Dash symbol for an overdue inspection or accessory replacement is upgraded to a Red X symbol, close out the original Red Dash by the remark, "Symbol changed to a Red X," in the corrective action block. Reopen the original entry in the next available space of the discrepancy and work document with the Red X symbol.

### 3-10 TECHNICAL ORDER COMPLIANCE WAIVERS.

3-10.1 When compliance with immediate action or urgent action TCTOs or commercial equivalent is deferred/waived, change the Red X to a Red Dash symbol. Upon termination of the condition that required the use of the waiver, the Red Dash symbol reverts to a Red X.

3-10.2 An exception to the use of the Red X will be made only when the TCTO affects weapon system, support system or equipment and does not affect safety of flight or use, but prohibits use of the affected equipment until the work prescribed in the TCTO is accomplished. In such cases, activities not using the equipment may request a waiver of compliance with the TCTO from the SM, through the major command. If approved, disregard the required status symbol upgrade until use of the affected equipment is required or work is started. Enter a brief statement of reason for non-compliance with TCTOs on the applicable forms.



## CHAPTER 4

# MAINTENANCE INSPECTION POLICY AND ACCESSORY REPLACEMENT AND REUSE REQUIREMENTS

### 4-1 PLANNED INSPECTION AND MAINTENANCE CONCEPT.

The planned inspection and maintenance concept provides a method of performing required inspections and repairs on a scheduled and planned basis. This planning and scheduling is required for phased, periodic, and isochronal inspections and major maintenance on weapon systems, support systems or equipment to effectively use assigned manpower. Publication of inspection workcards, if applicable, also provide a degree of planning and scheduling for other inspections.

### 4-2 DESCRIPTION AND MAINTENANCE OF INSPECTION WORKCARDS.

The inspection workcards outline the minimum inspection requirements and provide each technician and specialist with a convenient inspection guide. They list the requirements to be performed and reflect the most logical sequence for accomplishment. Each workcard also contains other pertinent information to indicate, when the work is scheduled, how much time is allotted, the work area, the type of technician or specialist required, and electrical power requirements. Cards are grouped by the type of specialist required to accomplish the inspection so that all requirements listed on any particular card can normally be accomplished by one individual. This arrangement of the workcards permits the supervisor to assign a technician to a certain work area to do a specific task or series of tasks. The use of the workcards permits the work of each individual to be programmed for uninterrupted task accomplishment. This affords planned use of personnel, early detection of discrepancies, and more accurate planning for the accomplishment of the required repair work.

4-2.1 Prepare and maintain the inspection workcards, when required, for all Air Force weapon systems, support systems, or equipment items by the SM (TO 00-25-115) in collaboration with the major commands. TO 00-5-1 classifies workcards as technical publications. Requisitions and distribution of workcards will be in accordance with TO 00-5-2.

4-2.2 AFTO FORM 26, AIRCRAFT INSPECTION WORKCARD (figure 4-1); and 26D, INSPECTION WORKCARD (figure 4-2) are available through normal publication channels to permit local preparation of replacement workcards for those that become unserviceable. Local reproduction of the forms is authorized. The AFTO FORM 26 is intended to be a 5" x 8" document, printing two to a page. This document should be trimmed to appropriate size to fit the needs of the user. These forms are also provided to permit the preparation of additional workcards for special installed equipment not covered by the published card set. They also aid in preparation of complete inspection workcard sets for weapon system, support systems or equipment of nonstandard configuration, or which are in service in limited quantities, and do not have published inspection workcard sets. Activities possessing weapon systems, support systems or equipment or the categories mentioned above must contact the SM to determine whether published workcard sets will or will not be provided before any action is taken to prepare complete inspection workcard sets locally.

4-2.3 When inspection requirements pertain to systems or components that are not installed on locally maintained weapon systems, support systems or equipment, quality assurance may line out the non-applicable requirements and enter "NA" in the margin. Adjust "CARD TIME" block as necessary when such changes are made. When entire cards do not pertain to locally maintained weapon systems, support systems, or equipment, quality assurance may authorize the deletion of non-applicable workcards for all sub-accounts as long as these cards are maintained in the master file.

4-2.4 Enter additional inspection requirements necessary due to local conditions, such as types of missions, special utilization, or geographic locations, on locally prepared inspection workcards. Authorized individuals are prescribed by the major command, and in accordance with TO 00-5-1.

4-2.5 When the arrangement of published workcards is not entirely compatible with the specialist manning or scheduled sequence preferred by the concerned activity, using activities may transfer individual inspection requirements from one card to another with GP/CC approval. Do not make

minor changes of this nature if specifically prohibited by major command directives.

#### 4-3 SCHEDULED MAINTENANCE INSPECTIONS.

Scheduled maintenance inspections required for Air Force equipment are prescribed in the applicable -6 scheduled inspection and maintenance requirements manuals and inspection workcards or checklists. The various types of inspections and policies are listed in TO 00-20-5. PDM intervals are listed in TO 00-25-4 and CAMS/REMIS/G081/IMDS Master Job Standard Tables.

4-3.1 The scheduled maintenance inspection intervals for weapon systems, support systems, equipment end items and components are specified in the applicable -6 scheduled inspection and maintenance requirements manuals and inspection workcards. All requirements pertaining to inspections will normally be accomplished concurrently to avoid complications in scheduling and controlling the required maintenance.

4-3.2 The intervals specified for scheduled maintenance inspections and recurring supplementary inspection requirements, such as calendar and flying hour, represent the maximum interval between accomplishment of such requirements.

4-3.3 Periodic, isochronal, phase inspections, HSCs, HPOs, and commercial equivalent are scheduled at equal intervals throughout the total inspection cycle, regardless of when inspections were actually completed. Do not exceed inspection intervals except to meet essential mission requirements as determined by the major commands or to allow for flexibility in a scheduling system. If the interval is exceeded, use the appropriate red symbol (specific exceptions will be in the appropriate TOs). Inspection interval extensions without the use of a Red Dash symbol are authorized only for service tests and special projects that are approved by the SM and the Major Command. Changes to prescribed inspection intervals, concepts or requirements will normally be made only after thorough analysis of data obtained from the MDD system and using Reliability Centered Maintenance (RCM).

4-3.4 Scheduled inspection requirements specified in publications other than the -6 are not applicable to components in an installed status and may be disregarded. Inspection requirements for components not installed are contained in the commodity and equipment manuals. If inspection requirements for installed items are listed in publications other than the -6, bring them to the attention of the SM, who will take action to delete the inspection requirements from the commodity and equipment manuals or have them transferred

to applicable -6 scheduled inspection and maintenance requirements manuals. Aircrew Life Support Equipment not in an installed status and therefore not listed in the -6 TO, as defined in appendix A, is exempt from these requirements.

4-3.5 If a workload balancing feature is not provided for by the arrangement of the inspection workcards or checklists, activities may devise a local system to provide equal workload packages for all like-type inspections. To establish such a system, perform the recurring supplementary inspection requirements at any scheduled inspection, provided controls are established to assure that the prescribed intervals are never exceeded. Distribution of these requirements serves as a means of balancing the workload for scheduled inspections. For example, the requirements due at every second periodic can be distributed between the odd and even numbered periodic inspections by annotating the applicable inspection workcards (refer to paragraph 4-2.5). The controls for the calendar and flying hour items are already provided for by the required calendar inspection documents. If a workload balancing system is adopted, it is necessary to accomplish certain requirements prematurely during the first group of inspections to establish the desired cycle for subsequent inspections. When a weapon system, support system or equipment is transferred by a unit using a workload balancing feature, notify the gaining activity of the specific workload balancing feature employed. Any weapon system, support system or equipment received through transfer after the system is put into effect must be phased into the program in the same manner as applied when the inspection system was initiated. This prevents exceeding the interval for any requirements regardless of the inspection method or distribution arrangement used by the transferring or gaining organization.

4-3.6 The primary responsibility for safe operation of the weapon system, support system or equipment rests with the using activity. GP/CCs may increase the frequency or scope of scheduled inspections or individual inspection requirements, when required for temporary situations.

4-3.6.1 This may involve special utilization, short-duration special missions, and unusual short term environmental conditions.

4-3.6.2 Exercise these prerogatives as an interim measure for unanticipated situations expected to exist for a prolonged period or recur at frequent intervals. In such cases, prepare and submit recommendations through the MAJCOM to the applicable SM for approval and inclusion in appropriate technical orders.

4-3.7 All activities are responsible for properly phasing the accomplishment of new inspection and replacement requirements reflected in changes to the scheduled inspection and maintenance requirements manuals. In general, determine the interval for initial accomplishment of the new requirements by comparing the weapon or support system or equipment item time with the interval prescribed for the new requirement. When age or accrued time of the weapon system, support system, or equipment is less than the specified inspection interval, begin accomplishment of the new requirements at the prescribed interval. If the age or time is beyond the specified interval, accomplish initial inspections as soon as practicable and regulate subsequent inspections accordingly. When requirements are added or changed for accessory items, determine operating time in accordance with paragraph 4-13.

#### **4-4 TRANSFER INSPECTION REQUIREMENTS FOR EQUIPMENT.**

When equipment, other than aerospace vehicles, is transferred from one organization for operational use to another organization, the transferring organization personnel will accomplish an inspection to assure that the equipment is fully operational and that supporting forms and documents are accurate and complete. The transfer inspection will include a functional check to assure proper performance and a physical inventory to assure that the equipment is complete. If more than 75 percent of the inspection interval has elapsed since the last completed inspection, the transferring organization personnel will accomplish the next scheduled phase, periodic, or calendar inspection. Place a certification entry, signed by the maintenance supervisor, (to indicate that a transfer inspection was accomplished in accordance with the applicable equipment technical orders) on the maintenance status documents for the equipment. Transfer inspection requirements for aerospace vehicles are covered in chapter 5 of this technical order.

#### **4-5 ACCEPTANCE INSPECTIONS.**

The receiving organization will perform an acceptance inspection on all newly assigned weapon systems, support systems and equipment prior to placement into service. Accomplish an acceptance inspection on all aircraft and engines received from depot maintenance, either organic or contract, prior to being placed in service. These inspections will be of sufficient depth to determine the ability of the item to perform its designed function. Check to ensure the completeness of historical documents. Record this inspection on the

appropriate documents and the appropriate information system, G081, CAMS, or IMDS. The discrepancies will also be entered into the Deficiency Reporting Base IAW TO 00-35D-54.

4-5.1 For aircraft with installed or pre-positioned ALSE, the equipment must be inspected and repacked by the gaining unit. If maintenance workload prevents accomplishment, as determined by the GP/CC, the equipment will be scheduled as soon as possible for the required inspection/repack, not to exceed 90 days. Installed ALSE on aircraft returning from Depot Contract Field Teams or from Depot "Speed Lines," where the ALSE had no maintenance other than "safeing," the inspection and repack is a MAJCOM option.

4-5.2 After the expiration of 90 days since arrival at home station and the inspection/repack has not been accomplished by gaining unit personnel, the equipment must be removed from service and placed on a Red X until accomplished. EXCEPTION: The B-1 personnel parachutes.

#### **4-6 APPLICABILITY OF CONTRACTOR'S INSPECTION ACCEPTANCE MARKINGS AND DECALS.**

In many instances, inspection acceptance markings and decals are used by contractors during the manufacture, repair, and assembly of weapon systems and equipment for the Air Force. Those commonly used markings are in the form of decals placed over the edges of inspection openings, plastic materials formed over hose and line fittings, and paint stripes on bolts and studs. After the weapon system or equipment is delivered to an Air Force activity, these markings and decals will be considered meaningless. In no case will they be considered as authority or reason for noncompliance with Air Force technical publications which direct inspection and maintenance on weapon systems, support systems, or equipment.

#### **4-7 INSPECTION RESPONSIBILITY FOR WORK ACCOMPLISHED AT OPERATING LOCATIONS OR STATIONS BY DEPOT OR CONTRACTOR TEAMS.**

When modifications are accomplished on weapon systems, support systems, or equipment items at the operating organization by depot or contractor teams, the following policies apply in respect to inspection of work accomplished:

4-7.1 Inspection of work performed by a depot field work team is the responsibility of the ALC which has the responsibility for the work. However, a support ALC may assign the responsibility to the weapon system, support systems, or equipment ALC or the depot team that performs the work. If depot quality assurance personnel do not accompany depot field teams, the ALC negotiates

with the using major command for quality assurance inspections and will include this in the workload agreement.

4-7.2 Inspection and acceptance of contractor field team work by base maintenance personnel is in accordance with agreements made between the prime ALC and the using command representatives during the pre-contract conference (AFI 21-102). When it is agreed that the base does not have the capability to perform quality assurance and acceptance inspections, the prime ALC provides or arranges for support from the geographic ALC or a Technology Repair Center (TRC).

#### **4-8 UNSAFE MECHANICAL CONDITIONS OR MATERIEL FAILURES.**

When an unsafe mechanical condition or materiel failure is discovered on a weapon system, support system or equipment and potential exists that this condition may exist on other weapon systems, support systems or equipment the following action will be taken by the GP/CC or higher authority.

4-8.1 Immediately inspect a representative number of systems or units of the same mission and design to determine if the condition exists on other weapon systems, support systems or equipment.

4-8.2 When warranted, restrict from further flight or use, similar systems or units and submit a Deficiency Report (DR) or Service Report (SR) in accordance with TO 00-35D-54.

4-8.3 The weapon system, support system or equipment having the deficiency will remain restricted from use until corrective action is taken or definite instructions are received from the SM and/or the MAJCOM.

#### **4-9 ACCESSORY REPLACEMENT AND REUSE.**

4-9.1 Accessories, as defined in chapter 6 of this technical order, include both time-change items and condition replacement items. Those accessories not identified in the applicable -6 scheduled inspection and maintenance requirements manual as time-change items are condition replacement items. Condition items only require replacement when it is determined they are operationally unserviceable. Detailed replacement requirements for time-change items are covered in paragraph 4-12.

4-9.2 Do not remove items from a weapon system, support system, or equipment involved in a mishap until investigation personnel authorize such removals. Reuse of parts or accessories from wrecked or damaged aerospace vehicles or equipment requires extreme caution. Using the appropriate technical orders conduct thorough testing and/or inspection of items that may have been

damaged before they are used. Although the external appearance may indicate that the item was not damaged, hidden flaws may exist due to stress, strain, or other forces that can only be detected by testing and inspection. Items routed for test and/or inspection will include a notation on the AFTO FORM 350 that the item was removed from a wrecked or damaged weapon system, support system or equipment. In the absence of appropriate technical orders contact the SM through the MAJCOM for guidance.

#### **4-10 TIME-CHANGE ITEM (TCI) REPLACEMENT POLICIES.**

Items designated as TCIs are replaced at specified intervals. The primary objective of the time-change replacement program is to achieve maximum utilization of components consistent with the economic operation of weapon systems, support systems and equipment without jeopardizing flight or operational safety.

4-10.1 Time-change replacement requirements are prescribed only for those items that have a measured service life expectancy and that display an age related failure pattern, (e.g. a failure pattern that rises sharply at some given operating time or age of an item). Additionally, the item must fall into one or more of the following categories to be a valid candidate for time-change replacement:

4-10.1.1 Items whose failure due to location or function within a system would compromise safety of flight of airborne systems or the operational safety of ground equipment.

4-10.1.2 Items whose failure due to location or function within a system would definitely cause a mission to abort or ground equipment failures that would cause excessive downtime for mission critical items.

4-10.1.3 Items for which a failure might cause damage beyond economical repair.

4-10.1.4 Items whose physical characteristics allow an accurate prediction of deterioration from calendar time or hours in operational use.

4-10.2 The replacement schedule of the -6 scheduled inspection and maintenance requirements manual, Master Job Standard Number table, or inspection workcards are the only authority for the scheduled replacement interval of accessory and components, except for the following deviations:

4-10.2.1 Technical Order 2-1-18 will be used as the authority for scheduled replacement of reciprocating engines, gas turbine engines, and propeller reduction gearboxes.

4-10.2.2 The 11P ( ) or 11A ( ) series TOs will be used for scheduled replacement of explosive devices. Service life requirements for ALSE items can be found in specific technical orders, for example 14D, 14S, 15X, etc.

4-10.2.3 The -6 manuals or inspection workcards will make note of each listed item and reference the applicable commodity series TOs which will serve as authority if in conflict with the -6 manuals or workcards.

4-10.3 Replacement intervals for any specific item are based on the weapon system, support system or equipment installation and utilization, rather than being a general replacement interval for all applications. Based on this rule, the replacement interval for an identical item may vary considerably for different weapon systems, support systems or equipment application.

4-10.4 Equipment in an operational status that is used for ground instructional purposes will have the TCIs replaced at the specified replacement interval. Compute operating time accrued on accessories installed on the equipment while in such status by multiplying the estimated monthly usage by the number of months that the equipment is in such status.

4-10.5 Consider TCIs due for replacement at the hourly postflight, home station check, phased, periodic, minor or major isochronal, scheduled PDM, etc. nearest to the replacement date. The expiration date for both the service and shelf life on life sustaining or CAD/PAD items will be the last day of the expiration month. MAJCOMs may waive the requirement to make time changes at hourly postflight when the interval is 50 hours or less. This policy enhances effective maintenance scheduling, reduced equipment downtime, and eliminates the need for checking replacement documents on a daily basis. Base the determination of the nearest inspection for calendar TCIs on the average or projected utilization of the weapon system, support system or equipment for any given period. As an example, if an aircraft having a 25-hour inspection cycle accrues an average of 25 hours each month and is undergoing an inspection on the first day of the month, any calendar TCIs due for change between the 1st and 15th of that month are due for change at that inspection. Similarly, any calendar TCIs due for change between

the 16th and the last day of that month will be considered due for change at the next inspection. EXCEPTION: Service limits of life sustaining or CAD/PAD items can not exceed the limits imposed by Tables 4-1 and 4-2. Units should schedule these items for replacement at the nearest scheduled inspection prior to expiration of service life established by the applicable series technical orders.

4-10.6 When the previous operating time of a TCI is unknown or known to be invalid refer to Table 4-2.

4-10.7 During depot processing, replace TCIs only if due as indicated by the TCIs replacement documents. It may be more expedient and less expensive to accomplish replacement of some TCIs at the depot. The annual workload conference should review those TCIs that, because of accessibility or other factors, may be candidates for depot change. The candidates would then be negotiated for change prior to PDM input when their accumulated time was high in relation to their specific replacement interval. The item must be included on the applicable AFTO FORM 103, AIRCRAFT/MISSILE CONDITION CODE.

4-10.8 Continue processing weapon systems, support systems or equipment time-change items (except helicopter gearboxes) for shipment to areas outside the CONUS when the accumulated time of the item plus 150 hours does not exceed the specified replacement interval. Helicopter gearboxes may be continued in use when the remaining time equals or exceeds 50 percent of the established replacement interval. Those items having a replacement interval of 150 hours or less will be replaced with zero-time items during processing. Those items having replacement interval expressed in calendar time may be continued in use if they have four months of service life remaining. Those items to be continued in use will be given a thorough inspection and functional test to determine operational serviceability. The above procedures do not apply for weapon systems, support systems and equipment possessed by overseas activities being delivered to CONUS facilities for maintenance and return to the owning organization. In these cases the provisions of TO 00-25-4 will apply.

## NOTE

Requests for CAD/PAD shelf/service life extensions should be forwarded for action to OO-ALC/LIW, Hill AFB, UT with an information copy to appropriate aircraft SM and MAJCOM Functional Manager, on a case-by-case basis. The following information will be included: Aircraft serial number; date CAD/PAD item was installed; aircraft grounding date; CAD/PAD DOM, lot number, and status of requisition for replacement part. The required engineering analysis will be accomplished by the OO-ALC/LIW and a flight/grounding recommendation made to the aircraft SM. The aircraft SM will make the final determination on aircraft status. Requests for ALSE items shelf/service life extensions should be forwarded to HSC/YAD, 8107 13th Street, Brooks AFB TX, 78235-5238 through appropriate Major Command focal point. The Life Support System Manager (HSC/YA) will consider shelf/service life extensions based upon item application and engineering technical analysis IAW AFI 11-301. The intent is to preclude unnecessary aircraft grounding.

4-10.9 Forecasting procedures for TCIs are currently contained in TO 00-20-9, but will be automated after MJSNs are implemented in IMDS, G081 and CAMS.

#### 4-11 TIME-CHANGE ITEM REUSE POLICIES.

4-11.1 When TCIs that have been previously used are installed on a weapon system, support system or equipment and the replacement interval is the same, enter the previous time in use on the appropriate time-change item replacement documents or automated system.

4-11.2 If the previous scheduled replacement interval is different from the scheduled replacement interval for the weapon system, support system or equipment on which the item is being installed, recompute the operating time.

4-11.2.1 Compute the operating time for the new installation by obtaining the previous operating time from the DD FORM 1574 or historical documents, and subtract this figure from the former scheduled replacement interval.

4-11.2.2 Divide the resulting figure by the replacement interval of the former installation and

multiply by 100 to obtain the percentage of remaining operating time on the item.

4-11.2.3 Multiply the resulting percentage by the replacement interval time for the weapon system, support system or equipment in which the item is to be installed. This provides the remaining operating time for the item, which is used to determine the time the next replacement is due.

## NOTE

For CAD/PAD items, paragraph 4-13.2.2 and 4-13.2.3 do not apply.

4-11.3 When a TCI is removed prior to expiration of the replacement interval for repair, TCTO compliance, or because of modification of the weapon system, support system or equipment, reuse the item as governed by the following requirements (excluding CAD/PAD):

4-11.3.1 Items may be reused after minor repair or modification when the accumulated time on the item plus 100 hours does not exceed the replacement interval specified in the scheduled inspection and maintenance requirements manual.

4-11.3.2 Items which cannot be made serviceable through minor repair, modification, or whose remaining life is 100 hours or less, will be given a complete overhaul prior to reuse. If a complete overhaul is beyond base level capability, the item will be processed to a depot facility.

4-11.3.3 Items having a calendar replacement interval may be reused after minor repair when more than three months of service life remains. If less than three months remains, give the items a complete overhaul prior to reuse.

4-11.4 When an installed condition item is selected as a TCI and the weapon system, support system or equipment unit time since new is less than the prescribed replacement interval for the item, assume that the operating time of the time-change item is the same as the weapon system, support system or equipment. When both an hourly and calendar interval are prescribed for the added item, base the calendar age on the ratio of the weapon system, support system or equipment age to the hourly replacement interval. For example, an item has an age of 300 hours when an item requiring replacement at 500 hours or three years is added to the replacement schedule, assume that 3/5 of the calendar interval has been consumed and 2/5 or 14 months of the calendar age is remaining. When the operating time of the weapon system, support system or equipment since new, exceeds the prescribed replacement interval for a newly selected TCI, assume that the



TCI has 50 percent of its established replacement interval remaining.

4-11.5 For class A-2 and B-2 engine accessories, assume that the item was installed at the last engine change. When engine power packs are involved, it may be assumed that the operating time is the same as the power pack time since last overhaul.

4-11.6 Conditional replacement items may be removed from one type of weapon system, support system or equipment, be restored to a serviceable condition through off-equipment maintenance or minor repair, and then be issued for installation on a weapon system, support system or equipment where it will be a time-change item. Partial service life will have accrued; however, because the item has been a conditional replacement item, a "previous operating time" entry could not be made on the serviceable tag. To determine service life status of these items, maintenance personnel must examine the serviceable tag on each time-change item prior to installation, determine the tag's source of initiation, and take one of the following courses of action:

4-11.6.1 If the serviceable tag was initiated by the manufacturer or an AFMC overhaul facility, assume that the item has zero operating time.

4-11.6.2 If the serviceable tag was initiated by an operating location or centralized repair facility, assume that the item has 50 percent of its service life remaining. When an operating location or centralized repair facility is authorized to overhaul items as prescribed in the weapon system, support system or equipment maintenance manuals, consider these items as having zero operating time. Identify items overhauled at these maintenance

facilities with the word "overhauled" stamped across the face of the serviceable tag. Do not zero the operating time for limited life items. Retain total time since manufacture for all document purposes.

#### **4-12 TRANSIENT AIRCRAFT MAINTENANCE.**

4-12.1 Generally, transient stations incur the charge of depot level reparables issued to transient aircraft.

4-12.2 Home stations are responsible for reparable support for their aircraft requiring repair at a transient location when both of the following occur: (a) the spare is not available at the transient location and (b) the exchange price for the reparable is greater than \$20,000. The movement of reparable spare parts under this criteria is accomplished through maintenance to maintenance. Serviceable and reparable parts originating from home station will return to home station. This allows for due in from maintenance (DIFM) control and associated financial transactions to be processed at home station.

4-12.3 If the spare is not available at the transient station or home station, the home station base supply locates (through lateral support) the reparable spare part, incurs the charge, and has the part shipped to the transient station "marked for" the aircraft tail number. The transient station returns the reparable part to the home station. This allows for DIFM control and associated financial transactions to be processed at home station. Contractor-supported aircraft units will follow procedures established in the contract. AMC will develop procedures for Tanker/Airlift Coordination Center (TACC).

[illegible]

Figure 4-1. AFTO Form 26

[illegible]

**AFTO FORM 26D, 19951201 (EF-V2)**

PREVIOUS EDITION WILL BE USED

H0000007

Figure 4-2. AFTO Form 26D

Table 4-1. Red Symbol Entries for Installed Weapon System or Support System Time Change Items

| Rule | A  | B   | C   |
|------|--|---|---|
|      | If a weapon system or support system time change item:   | And maintenance:  | Then maintenance will:  |
| 1    | is determined due replacement at the next scheduled inspection   | fails to replace the item at the next scheduled inspection excluding, preflight, thru flight, and basic post flight | place a red dash in the applicable maintenance forms indicating that the time change is due replacement                                     |
| 2    | was determined due replacement at the last scheduled inspection or the items replacement time has and the aircraft had no -6 HPO requirement | placed a red dash in the applicable maintenance forms   | upgrade to a red X in the applicable maintenance forms at the start of the next scheduled inspection  |
| Rule | A  | B   | C   |
|      | If a life sustaining time change item identified with an asterisk in the -6 or a CAD/PAD item:   | And maintenance:  | Then maintenance will:  |
| 3    | is determined to be due at the next applicable inspection, and that inspection will occur after the items replacement time/date has expired  | does not replace the item when the item replacement time/date expires   | place a red X in the applicable maintenance forms indicating that the item is due replacement prior to the next flight or operation         |
| 4    | is determined to be due at the next applicable inspection, and that inspection will occur before the items replacement time/date has expired | does not replace the item during the inspection   | place a red dash in the applicable maintenance forms indicating that the item is due replacement at the expiration of replacement time/date |
| 5    | was entered in the forms as a red dash indicating replacement due at the expiration of the replacement time/date                             | does not replace the item when the replacement time/date expires  | place a red X in the applicable maintenance forms indicating the item is due replacement prior to the next flight or operational use        |

Table 4-2. Processing Time Change Items Where Previous Operating Time is Unknown or Known to be Invalid

| If an airborne weapon system or support system time change item (includes CAD/PAD) has a previous operating time which is unknown or known to be invalid | And the time change item is:   | Then Maintenance will:   |
|--|--|--|
|  | life sustaining installed in an aircraft   | place a red X in the applicable maintenance forms indicating that item is due replacement prior to the next flight or operational use  |
|  | life sustaining not installed in an aircraft   | process for overhaul in accordance with TO 00-20-3   |
|  | not life sustaining and is installed in a weapon system, support system or equipment | estimate the previous operating time at 50 percent of the service life and continue in use   |
|  | not life sustaining and not installed  | process in accordance with TO 00-20-3 for condition determination. If serviceable, or made serviceable by minor maintenance, estimate previous operating time at 50 percent of serviceable life. If made serviceable through an authorized overhaul, it may be considered as having zero operating time unless notification has been issued to the contrary by the overhaul facility |



## CHAPTER 5

# INSPECTION AND MAINTENANCE REQUIREMENTS FOR TRANSFERRING AEROSPACE VEHICLES

### 5-1 GENERAL.

Headquarters Air Force Material Command manages the assignment of aerospace vehicles as directed by HQ USAF. When a transfer is directed, it will be made within 30 days of receipt of proper notification by the major command to which the aerospace vehicle is assigned. If additional time is required to effect the transfer, forward a request for authority to delay the transfer for a specific number of days to AFMC, stating reasons for the delay.

5-1.1 Tactical movement of complete combat elements and temporary loans of aerospace vehicles between Air Force organizations do not come under the provisions of this technical order. Responsibility for condition, maintenance, and documentation, in the case of temporary loans, will be as agreed to by the commanders concerned.

5-1.2 Report aerospace vehicles as available for transfer (AFI 21-103) upon completion of preparation for transfer.

5-1.3 After completing the pre-transfer maintenance, including Functional Check Flights (FCF) if required, the possessing activity will restrict the aircraft from further use. The aircraft will be maintained in suitable condition to prevent delay of the ferry or transfer flight.

5-1.4 List installed guns on AF FORM 2692 regardless of whether or not they are listed in the -21 technical order. When aircraft assigned small weapons (50 caliber or under) are transferred, the losing maintenance activity will notify base supply, supply systems branch, document control section, of the serial number(s) being transferred.

5-1.5 When aerospace vehicles are to be transferred to agencies outside the Air Force, AFMC will issue special instructions for TCTO compliance and maintenance requirements for the transfer. When ASC or AFMC aerospace vehicles are placed on bailment to contractors, special instructions necessary for the preparation of the vehicle for delivery to the bailee and its return to the Air Force will be included in the bailment agreement.

5-1.6 Aerospace vehicles being prepared for return to service after removal from storage by Air

Force commands other than AFMC will not be processed through AFMC depot facilities unless inspection upon removal from storage indicates that depot maintenance is required. All required maintenance will be accomplished by the command removing the aerospace vehicle from storage. Depot maintenance requirements will be negotiated with AFMC.

5-1.7 When aerospace vehicles are transferred from another Air Force unit, the gaining organization will:

5-1.7.1 Inventory equipment and records for completeness.

5-1.7.2 Perform normal after flight inspections if the vehicle was flown.

5-1.7.3 Perform inspections as required by the equipment technical orders (e.g., assembly and check out) if the vehicle was shipped. When aerospace vehicles are short -21 equipment, adjust the shortages in accordance with the procedures in AFI 21-103. When the condition of the aerospace vehicle indicates discrepancies on the part of the transferring organization, refer the matter to the major command having jurisdiction over the losing organization who will take positive action to prevent recurrence. An exception will be made when the discrepancies result from waiver of requirements under the provisions of paragraph 5-2.3.

5-1.7.4 Perform a chart "A" inventory IAW the applicable dash 9 T.O.

5-1.8 Aircraft directed to be transferred while at a depot/contractor facility will be returned to the losing organization upon completion of the work for the accomplishment of the transfer inspection and maintenance, unless the using command and the SM agree that transfer requirements will be accomplished by the depot facility. For missiles, the depot/contractor accomplishes the transfer inspection.

5-1.9 When AFMC depot/contractor facilities perform transfer requirements for a losing organization, they will report all accountable equipment shortages to the losing organization. The AFMC/contractor facility will include a copy of the

reported shortages with the aerospace vehicle historical documents. The losing organization will be responsible for the shipment of shortages to the gaining organization without undue delay. All shipments will be clearly marked and identified as equipment shortages for the aerospace vehicle type and serial number which was transferred. When the losing organization is unable to supply all reported equipment shortages, corrective action will be the responsibility of the parent MAJCOM.

## **5-2 PREPARATION OF AEROSPACE VEHICLES FOR TRANSFER IN COMPLETELY SERVICEABLE CONDITION.**

When an organization receives instructions to release an aerospace vehicle for transfer from other than AFMC storage, they will insure that the aerospace vehicle is complete and that all correctable discrepancies are cleared. For additional guidance, see chapter 3.

5-2.1 The AFTO FORM 345, AEROSPACE VEHICLE TRANSFER INSPECTION CHECKLIST AND CERTIFICATION, (figures 5-1 and 5-2 outlines requirements to be accomplished in conjunction with the transfer.). Use of the AFTO FORM 345 is optional for missile units. Complete this form and forward the original with the aerospace vehicle and retain the duplicate. Form entries are self-explanatory and serve as a certification of the requirements listed. List any special requirements individually under item 13. If applicable, waivers outlined in subsequent paragraphs will be listed in block 15, "REMARKS," with a reference to the authorizing communications. See paragraph 5-3.1 for use of AFTO FORM 290.

5-2.2 Specific responsibilities of the losing organization to be accomplished in conjunction with the requirements listed on the AFTO FORM 345 are as follows:

5-2.2.1 If over 50 percent of the inspection time has elapsed at the time of transfer, then accomplish the next scheduled hourly postflight, phase, periodic, minor or major inspection on the aircraft or missile. Accomplish inspections as prescribed in the applicable scheduled inspection and maintenance requirements manual or workcard set, including special items and accessory changes as required. Paragraph 5-4 lists instructions pertaining to delivery of aerospace vehicles to a depot facility for modification and/or maintenance work.

5-2.2.2 Correct all discrepancies that are within the maintenance capability and for which parts are available. For parts which are not available and valid delayed discrepancies do exist, include the AF FORM 2414, Verification Work Sheet, with the historical documents that are transferred.

5-2.2.3 Determine if depot maintenance is required, and if so, arrange for its accomplishment in accordance with paragraph 5-2.4.

5-2.2.4 Comply with all outstanding TCTOs for which kits are available or can be obtained. If TCTO kits are received too late for compliance by the established transfer date or requisitioned kits have not been received, comply with the provisions of TO 00-5-15.

5-2.2.5 For aircraft, change the engines as required under the provisions of TO 2-1-18.

5-2.2.6 For aircraft, accomplish a functional check flight (FCF) when required in accordance with the scheduled inspection and maintenance requirements manual, or when required by a TCTO.

5-2.2.7 Ensure that aerospace vehicles are complete and properly adjust or account for equipment shortages.

5-2.2.8 When discrepancies cannot be cleared because parts are not available, enter the applicable illustrated parts breakdown technical order number, date, figure, and index for each part in the maintenance documents.

5-2.2.9 Review all documents and ensure that they are accurate and complete.

5-2.3 The requirements outlined in paragraph 5-2.2 are intended to assure complete serviceability of aerospace vehicles when transferred from one organization to another under normal conditions. Due to varying circumstances and conditions, the following deviations are authorized:

5-2.3.1 A major command having jurisdiction over both the losing and gaining organization may waive or modify any or all of the requirements stated in paragraph 5-2.2

5-2.3.2 For transfers from one MAJCOM to another, the gaining MAJCOM may waive any or all of the requirements stated in paragraph 5-2.2 or modify them under agreement between the losing command and the gaining command.

5-2.4 If the aerospace vehicle requires unprogrammed depot/contractor work prior to transfer, or the losing organization requires maintenance assistance, arrangements will be made by the losing organization with the appropriate System Program Manager (SPM) under the provisions of TO 00-25-107. In the event the aerospace vehicle must be delivered to a depot/contractor facility for work accomplishment, the losing organization will accomplish all of the requirements of paragraph 5-2.2, prior to delivery of the aerospace vehicle. The appropriate Single Manager (SM) may waive



or modify the requirements to have certain requirements of paragraph 5-2.2 accomplished by the depot/contractor facility. Changes can also be made if the gaining command agrees to waive certain or all of the requirements.

5-2.5 An activity preparing aerospace vehicles for overseas transfer will furnish the AFMC facility through which the vehicle will be staged or shipped, at least 30 days advance notification of each aerospace vehicle to be processed. This requirement is exempt from Report Control Symbol (RCS) licensing in accordance with AFI 37-124, the Information Collections and Reports Management Program; Controlling, Internal, Public, and Interagency AF Information Collections.

5-2.6 Aerospace vehicles removed from AFMC storage may require depot maintenance for restoration to complete serviceability prior to transfer. Aircraft requiring flight delivery to a repair facility will be prepared for "one-time flight," in accordance with paragraph 5-5.

5-2.7 The AFMC depot facilities preparing extended stay aircraft/missiles, AGM-65, and AGM-86B for transfer will accomplish all work necessary to ensure they are in a sound mechanical and serviceable condition. If these vehicles are equipped with engines that have been in storage, the engines may be used provided the depot facility complies with all existing technical orders applicable to the engine and engine accessories. Aircraft and AGM-65 missiles will not be reported as available for transfer until all applicable requirements are completed or until waivers have been authorized.

### **5-3 AFTO FORM 290 AEROSPACE VEHICLE DELIVERY RECEIPT.**

5-3.1 Use the AFTO FORM 290 (figure 5-3) to make delivery of vehicles easy and to furnish a record of selected equipment that will be transferred with the vehicles. The form:

5-3.1.1 Is not required if vehicles are moved by airlift or surface transportation.

5-3.1.2 Does not eliminate the requirement of preparing and using DD FORM 1149, but is used in addition on transfers if AFMC directs.

5-3.1.3 Does not require the delivery pilot, transporter, or the gaining organizations to physically check items other than those on the form.

5-3.2 AFTO FORM 290 serves two purposes:

5-3.2.1 Vehicle receipt for delivery pilots or transporters.

5-3.2.2 Receipt for vehicles, selected equipment, and paperwork checklist.

5-3.3 Prepare the form using the following guidelines:

5-3.3.1 The losing organization (such as the Air Force AVDO at factories, depots, modification centers, bases, etc.) or the delivery control officer prepares this form. This losing organization fills in the heading of the form, including.

5-3.3.1.1 The model.

5-3.3.1.2 Serial number.

5-3.3.1.3 Account or contract number.

5-3.3.1.4 Project and priority.

5-3.3.1.5 Flight order number (if known).

5-3.3.1.6 Gaining organization (organization where the vehicle will be delivered).

5-3.3.1.7 The losing organization (include organization unit number, base, and command).

5-3.3.1.8 The point and date of release.

5-3.3.1.9 In column B of the checklist, the numbers of listed items placed on each vehicle.

#### **NOTE**

List classified equipment installed on the vehicle in the space provided. Enter the word "none" in the "CLASSIFIED MATERIAL INSTALLED ON AIRCRAFT OR MISSILE" block of AFTO FORM 290 if no classified material is installed.

5-3.3.2 The authorized representative of the delivering organization (on accepting the vehicle for delivery and the responsibility for paperwork and equipment listed in column B of the checklist) signs the delivery receipt in the space provided. The representative indicates that each item has been checked by placing a check in column C of the checklist and initials at the bottom of the column.

5-3.3.3 The delivery organization will not accept vehicles until the items specified in column B agree with the quantity in the vehicle.

5-3.3.3.1 In many cases, the pilot or transporter is the authorized representative of the delivering organization. In this case, the execution of the AFTO FORM 290 occurs just before actual departure of the vehicle.

5-3.3.3.2 Delivery control or transportation officers at factories or modification centers are

responsible for checking the items listed and signing the AFTO FORM 290.

5-3.3.3.3 At factories or modification centers, the delivery control or transportation officer may not have guards to keep close watch over aerospace vehicles received. Instead, the AVDO, a contractor, or other agency provides these services. In these cases, the delivery control transportation office is not responsible for items listed on AFTO FORM 290. As a result, the delivery pilot, transporter, or the delivery control or transportation officer must personally check all items and promptly sign a receipt for them on AFTO FORM 290 before the vehicle departs.

5-3.3.3.4 Space is provided on AFTO FORM 290 for three intermediate stops, where the pilot or transporter will not stay with the aircraft or missile and may want to be relieved of the responsibility for the items on the checklist.

5-3.3.3.4.1 If more than three intermediate stops are made, use an additional set of forms and attach them to the first form. At these intermediate activities, the commanders or their authorized representatives assume responsibility for the items after a check-in has been completed.

5-3.3.3.4.2 Immediately after the vehicle arrives at such an activity, the authorized activity representative and the pilot or transporter checks the items.

5-3.3.3.4.3 The activity representative places a check in the first open intermediate activity check in column and initials at the bottom of the column if all items shown in column B, or subsequently noted, are present.

5-3.3.3.4.4 If an item is missing, the representative enters the correct figure in the check-in column, and the pilot or transporter initials the corrected figure and explains in the remarks section of the form. After all items are checked, the activity commander is responsible for guarding against loss of such equipment or papers.

5-3.3.3.4.5 The pilot or transporter checks the items in the checklist before the vehicle leaves. The pilot or transporter checks the proper intermediate activity check-out column, and initials at the bottom of the check-out column. The activity representative also initials this column. This difference must be explained by the activity representative (in writing) in the remarks section of the form, together with his or her signature, grade, and activity.

5-3.3.3.4.6 When the vehicle arrives, the authorized representative of the recipient organization checks column J and initials at the bottom of the

column if all items shown in column B, or subsequently noted, are present.

5-3.3.3.5 If an item is missing, the representative enters the corrected figure in column J and the pilot or transporter initials the corrected figure and explains in the remarks section of the form.

5-3.3.3.6 The authorized representative of the recipient organization then signs the receipt in the space provided on the form.

5-3.4 Copies are prepared by the releasing organization and distributed as follows:

5-3.4.1 Copy 1--Home station.

5-3.4.2 Copy 2--Pilot or transporter.

5-3.4.3 Copy 3--Recipient.

5-3.4.4 Copy 4--Releasing organization.

5-3.4.5 Copy 5--Air Force Plant representative or chief of the Defense Contract Administration Services Offices (DCASO) where the contractor facility is located, marked for the property administrator. This copy is required if vehicles are delivered to the contractor facility.

5-3.5 Reducing the number of copies is permissible according to the needs of the individual command or by mutual agreement between commands concerned.

5-3.6 Maintain and dispose of AFTO forms IAW AFI 37-138.

#### **5-4 PREPARATION OF AEROSPACE VEHICLES FOR DELIVERY TO A DEPOT/CONTRACTOR FACILITY.**

5-4.1 Scheduled delivery of aerospace vehicles to a depot/contractor facility for scheduled or unscheduled modification and/or maintenance does not relieve the using organization from continuing to perform required maintenance prior to delivery of the vehicle to the facility.

5-4.2 The losing organization will prepare aerospace vehicles scheduled for delivery to a depot/contractor facility for modification and/or maintenance for delivery in accordance with the following guidance:

5-4.2.1 Perform all work necessary to place the aerospace vehicles in a safe, flyable, or transportable condition for delivery to the facility. Remove munitions unless a specific agreement is established between the base and the facility.

5-4.2.2 If the aerospace vehicle is to be returned to the same MAJCOM, only that equipment affected by the modification and/or maintenance need accompany the vehicle. The losing organization will comply with AFI 21-103 requirements.

5-4.2.3 Comply with the requirements in the modification and/or maintenance work specification and workload agreement which apply to the possessing unit. The work specification and workload agreement are a negotiated contract between the possessing MAJCOM and the ALC responsible for establishing the work requirement. The depot/contractor accomplishes those items contained in the work specifications. Additional requirements are identified on AFTO FORM 103.

5-4.3 TCTO kits on hand at base level, which will be installed by the facility, (as agreed to between the SM and the using command under the provisions of TO 00-25-4), will be forwarded to the facility. When kits are forwarded, they will either accompany the aerospace vehicle or be properly identified with the aerospace vehicle serial number and made available to the facility in time to avoid unnecessary delay in-processing.

#### **5-5 PREPARATION OF AIRCRAFT FOR TRANSFER BY "ONE-TIME FLIGHT."**

When instructions are received for transfer of an operational or a stored aircraft by "one-time flight," the transferring organization will conduct a thorough inspection of the aircraft, installed engines, and equipment that is essential for a safe transfer flight. The maintenance supervisor of the activity preparing the aircraft will determine the extent of inspection requirements. The transferring organization will:

5-5.1 Accomplish work required to place the aircraft in a safe, flyable condition for delivery. The maintenance supervisor of the activity preparing the aircraft for flight may release discrepancies, including outstanding routine action TCTOs, as "not safety of flight."

5-5.2 Comply with all immediate action and urgent action TCTOs for which the time limit has expired. If required, the transferring organization may request authority to waive compliance for TCTOs applicable to combat or other installed equipment that does not affect safety of the transfer flight or that will not be operated during flight, from the SM and the recipient activity.

5-5.3 GP/CC will consider an FCF to verify work accomplished under paragraph 5-5.1 and to verify the condition of all essential flight systems to assure that the aircraft is airworthy for the intended one-time flight. Such FCFs will be accomplished under the provisions of TO 1-1-300 and the applicable scheduled inspection and maintenance requirements manual, using applicable portions of the FCF checklists.

5-5.4 Ensure that aircraft are complete and shortages of equipment are adjusted or properly accounted for.

5-5.5 Review all documents and ensure that they are accurate and complete. Bases transferring aircraft that have been in storage to depot facilities may attach any local documents that were used during the aircraft storage period for recording applicable TCTOs to the aircraft forms. If attached, it will be noted on the AFTO FORM 781A or other appropriate forms. Depot facilities preparing aircraft removed from storage for subsequent delivery to using activities initiate or complete the maintenance documents prior to delivery. Remove all classified equipment from the aircraft unless specifically authorized in the project directive.

#### **5-6 PREPARATION OF AIRCRAFT TO BE TRANSFERRED OR SOLD UNDER THE FOREIGN ASSISTANCE ACT OF 1961 AS AMENDED AND THE MILITARY SALES ARMS EXPORT CONTROL ACT.**

5-6.1 The provisions of this paragraph apply to aircraft transferred under the both the grant aid assistance and foreign military sales. Aircraft project directives will indicate the condition in which aircraft will be placed prior to delivery. The condition indicated should be either serviceable, or reconditioned, or completely rehabilitated.

5-6.2 Air Force Manual 16-101 will be used as a guide in determining what must be done to aircraft prior to delivery.

5-6.3 Unless a deviation is authorized, all aircraft for any one project will be of the same configuration. They will be of the same mission, design, and series and will have the same TCTOs accomplished.

5-6.4 All classified equipment will be removed from the aircraft unless specifically authorized in the project directive.

5-6.5 Modification kits, accountable equipment, and supporting maintenance forms will be provided as prescribed in the project directives.

#### **5-7 PREPARATION OF AEROSPACE VEHICLES FOR DISPOSAL.**

The provisions of subsequent paragraphs are applicable to aerospace vehicles being disposed of through transfer to other services or independent agencies of the government, by donation to authorized recipients, or by sale to the general public.

5-7.1 Aircraft directed for flight delivery to a civilian or federal agency, unless otherwise specified, will be prepared for "one-time flight" in accordance with the provisions of paragraph 5-5.

5-7.2 Remove the following equipment from aerospace vehicles being prepared for transfer to other military services or independent agencies in accordance with instructions from AFMC prior to transfer:

5-7.2.1 All classified equipment which AFMC determines as not releasable to the requesting service or agency.

5-7.2.2 All classified papers, except those required for specific operation of the aerospace vehicle and installed or associated equipment.

5-7.2.3 Items of equipment specifically directed by AFMC.

5-7.3 Remove the following equipment from aerospace vehicles being prepared for donation to service education activities, tax-supported educational institutions, and other authorized recipients prior to release:

5-7.3.1 All classified material.

5-7.3.2 All guns, ammunition, explosive charges (except for explosive devices essential for egress or for safety of flight), and kits containing narcotics.

5-7.3.3 Items of equipment specifically directed by AFMC.

5-7.4 Aircraft which are determined commercially saleable by AFMC, and are being prepared for transfer to the local disposal officer for sale will have the equipment specified in paragraph 5-7.3 removed prior to release.

5-7.5 Prior to final disposition, local Air Force supervisory personnel will ensure equipment indicated in the preceding paragraphs is removed.

5-7.6 Prepare and distribute documents concerning transfer of aerospace vehicles to other services or independent agencies or to the disposal officer as specified in AFMAN 23-110, Volume 2CD.

5-7.7 Accomplish disposition of aerospace vehicles in the possession of redistribution and marketing activities as prescribed in AFMAN 23-110.

#### **5-8 PREPARATION OF AIRCRAFT USING THE G081/CAMS CAPABILITY.**

For aircraft managed under CAMS or G081, follow guidance specified for the appropriate system.

[illegible]

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Figure 5-1. AFTO Form 345, Aerospace Vehicle Transfer Inspection Checklist and Certification (Front)

[illegible]

Figure 5-2. AFTO Form 345, Aerospace Vehicle Transfer Inspection Checklist and Certification (Reverse)

[illegible]

Figure 5-3. AFTO Form 290





## CHAPTER 6

### AIR FORCE BAD ACTOR PROGRAM

#### 6-1 BACKGROUND.

The purpose of the Air Force Bad Actor Program is to identify serial-numbered items that enter the repair cycle at an abnormally high rate when compared to the total population of like assets and to repair them or remove them from supply. The following policy and procedures resulted from a one year prototype program sponsored by HQ USAF/ILMM (PROJECT ACTOR), recommendations from AFMC Project LM870736 (the Bad Actor Management Study), and processes developed by the Bad Actor Process Action Team (PAT).

6-1.1 The program procedures are written to compensate for the different maintenance philosophies of weapon systems and using commands. This provides both the using commands and AFMC the maximum amount of flexibility in running an effective Bad Actor Program for their weapon systems. The System Managers (SM), Engine Managers (EM), and Commodity Managers (CM) are encouraged to develop Memorandums of Agreements (MOAs) with their using commands to cover any specific weapon system, engine, and/or commodity program requirements. In addition, due to the variety of disciplines required for a successful program (inventory management, and distribution or supply) SM, EM, CM, and the using commands are encouraged to organize meetings with all team members to develop local procedures.

6-1.2 Included within this technical order (TO), and TO 00-35D-54, are several guidelines that may be used by the SM, EM, CM, and/or using commands. These guidelines were developed from lessons learned during the prototype program and form the process flows defined by the Bad Actor PAT.

#### 6-2 SELECTION PROCEDURES.

The SM, EM, CM technical staff and the user select part numbers or work unit codes (WUC) for Bad Actor management. The Product Improvement Working Group (PWIG) meeting is the forum where the field and depot identify part numbers or WUCs for Bad Actor management. Candidates should include all major Line Replaceable Units (LRU) and systems.

6-2.1 The using command, SM, EM, and/or CM review the Reliability and Maintainability Maintenance Information System (REMIS), G081, Material Improvement Projects (MIP), and Deficiency Reports (DR) in the G021L (Material Deficiency Reporting and Investigation System) data base, and the Core Automated Maintenance System (CAMS), data to identify part numbers or WUCs for systems suspected of containing a high number of Bad Actor LRUs.

6-2.2 Document selected part numbers or WUCs in the weapon system TO -6, section II, part D, in accordance with TO 00-20-2 and MIL PERF-5095E, Preparation of Inspection and Maintenance Requirements; Acceptance and Functional Check Flight Procedures and Checklists; Inspection Workcards; and Checklists.

6-2.3 If an LRU being considered for Bad Actor management contains subassemblies that do not have serial numbers, the selection of that LRU should not be excluded if it is cost effective to inscribe or affix a serial number on each subassembly. The SM, EM, and/or CM technical staff shall provide depot maintenance organizations with detailed instructions for inscribing or affixing serial numbers.

#### 6-3 IDENTIFICATION PROCEDURES.

6-3.1 Maintenance activities at all levels document maintenance actions by serial number for the selected part numbers or WUCs. Maintenance organizations retain all repair information required by the weapon system MOA.

6-3.2 Maintenance activities at all levels use the selection criteria coupled with the historical serialized repair information to identify a Bad Actor.

6-3.3 If a Bad Actor is identified on the flight line, and is coded for limited off-equipment repair, the flight line activity forwards the Bad Actor and its technical fault information to the off-equipment activity.

6-3.4 Field maintenance activities use G081 or CAMS to document maintenance history by serial number and to identify Bad Actors. Field maintenance organizations are authorized to use G081 or REMIS for analysis.

6-3.5 SMs are encouraged to develop a process to identify Bad Actors through data analysis. All sources of repair should be notified of the results of the analysis.

NOTE

Additional procedures and instructions are contained in TO 00-35D-54.

**6-4 DEPOT MAINTENANCE DATA DOCUMENTATION SYSTEMS.**

Depot maintenance activities input all maintenance actions into the appropriate maintenance data documentation system. SMs, EMs, and/or CMs determine if contractor repair activities require data documentation in the contracts.

**6-5 ACCOUNTABILITY AND/OR SUPPLY PROCEDURES.**

6-5.1 Bad Actor accountability and/or supply procedures start when a serial numbered asset has been identified as a Bad Actor.

6-5.2 When a Bad Actor has been identified, maintenance activities submit a Deficiency Report (DR) in accordance with TO 00-35D-54. The subject of the DR will include the words "BAD ACTOR." The DR will also include the serial number(s) in the appropriate field. Depot maintenance activities may request the SM, EM, and CM to approve a tailored version of the DR.

6-5.3 Maintenance activities shall treat an identified Bad Actor as an exhibit in accordance with TO 00-35D-54. Tag the exhibit with the words "BAD ACTOR" and "PROJECT CODE: 366." Do not label or mark the exhibit itself the Bad Actor. Provide a report on all the facts that led to the identification of the Bad Actor, faults detected, test equipment used, TO and procedure number, attempted corrective actions, etc., be provided with the exhibit.

## APPENDIX A

### DESCRIPTION OF FREQUENTLY USED MAINTENANCE TERMS

#### A-1 GENERAL.

This chapter provides a definition and description of frequently used maintenance terms used in the 00-20-series technical orders. Maintenance terms that are confined to specific applications are not included in this chapter since they are adequately defined in the applicable technical orders of this group.

#### A-2 DESCRIPTION OF MAINTENANCE TERMS.

**A-2.1 ACCESSORY.** A self-contained unit mounted on a higher assembly or is installed in a weapon system or end item of equipment. It is designed to perform a specific function; such as, generating electrical power, producing hydraulic or oil pressure or to apply these sources of power for actuating doors, mechanisms, and flight control surfaces.

**A-2.2 AEROSPACE VEHICLE.** Any vehicle that is designed to operate in the atmosphere and/or space environment.

**A-2.3 AIRCREW LIFE SUPPORT EQUIPMENT (ALSE).** Individual items worn by, attached to, used by, or provided for aircrew and passengers to maintain life, health, function, and safety during flight and to provide for escape, descent, survival, and recovery.

**A-2.3.1 ALSE, LIFE SUSTAINING EQUIPMENT** is that part of ALSE, such as oxygen regulators, pressurization components, egress or jettison system components, etc. which are aircraft installed. Life sustaining time change items are identified with an asterisk in section III of the applicable -6 TO.

**A-2.4 ASSEMBLY.** A unit which is normally removed and replaced as a single item, consisting of accessories and components that collectively perform a specific functional operation. Examples of assemblies are: engines, guidance and control packages, gearboxes, hydro-electrical, mechanical actuators, and communications equipment operating assembly (OA) groups.

**A-2.5 BENCH CHECK.** This term includes any off-equipment action by maintenance in determining the condition status of an item and the determination of capability or lack of capability to return an item removed for a malfunction or an alleged malfunction, to a serviceable status. It also includes repair action when the repair is accomplished concurrently with the bench check.

**A-2.6 BITS AND PIECES.** Items that are normally treated as one piece of hardware, or are physically constructed of two or more pieces joined together in a way that prevents disassembly without destruction or impairment of the designed use. Examples of such items are nuts, bolts, screws, gaskets, seals, bearings, brushes, gears, fuses, light bulbs, tubes, capacitors, and resistors.

**A-2.7 CLASS A-1 AND B-1 ACCESSORIES (AIRCRAFT, AIR-LAUNCHED MISSILE, AND SE ENGINE ITEMS ONLY).** Externally mounted engine accessories and components of reciprocating and turbojet engines, which when installed, constitute a complete basic engine as prescribed in TO 2R-1-16 and TO 2J-1-24. Return these accessories with the engine to an overhaul facility in accordance with instructions in the above referenced technical orders.

**A-2.8 CLASS A-2 AND B-2 ACCESSORIES (AIRCRAFT, AIR-LAUNCHED MISSILE, AND SE ENGINE ITEMS ONLY).** Externally mounted engine accessories and components of reciprocating and turbojet engines, which are not a part of the basic engine but are a part of the engine quick-change power pack, and for which a replacement time is specified in the aircraft, missile, or SE inspection requirements manual.

**A-2.9 COMPONENT.** An item (assembly, subassembly, or part) which serves as one of the parts of a whole.

**A-2.10 CONFIGURATION.** The functional and/or physical characteristics of hardware and software as set forth in technical documentation and achieved in a product.

**A-2.11 CONFIGURATION CONTROL.** The systematic evaluation coordination, and approval or disapproval of all approved changes in the configuration of a baselined CI, and implementation of approved changes.

**A-2.12 CONFIGURATION IDENTIFICATION.** The current approved or conditionally approved technical documentation for a configuration item as set forth in specifications, drawings and associated lists, and documents referenced therein.

**A-2.13 CONFIGURATION ITEM (CI).** An aggregation of hardware and/or software, or any portion thereof, that satisfies a function and is designated for configuration control. Items that reflect the current approved configuration of military systems

and/or commodities currently in the Air Force operational inventory. CIs require the use of the latest TO information listed in the appropriate TO Index.

**A-2.14 CONFIGURATION MANAGEMENT.** A discipline applying technical and administrative direction and surveillance to:

**A-2.14.1** Identify and document the functional and physical characteristics of a CI.

**A-2.14.2** Control changes to those characteristics.

**A-2.14.3** Record and report change processing and implementation status.

**A-2.15 CONFIGURATION STATUS ACCOUNTING.** The recording and reporting of the information that is needed to manage configuration effectively, including a listing of the approved configuration identification, the status of proposed changes to configuration, and the implementation status of approved changes on both a gross and individual serial number basis.

**A-2.16 CORE AUTOMATED MAINTENANCE SYSTEM (CAMS).** An automated base level maintenance information system for aircraft, engine, trainer, support equipment, TMDE, missile, and communications-electronic maintenance. CAMS provides support for the home base and deployed locations.

**A-2.17 END ITEM OF EQUIPMENT.** An entity of hardware which is not to be installed in another piece of equipment. The end item for airborne units is the aerospace vehicle itself. For SE, it is that configuration of hardware not installed in, nor physically attached to another piece of equipment to the extent that it loses its end item identity. Engines will also be considered as an end item when they are in a removed status. Selected systems that do not meet the above criteria but have been selected to be treated as such by the MDD PWG in the maintenance information systems i.e. guns, ejection systems, E-W PODs. For C-E, it is that group of components and dedicated ancillary devices that perform a specific mission function. Examples of C-E end items are radio sets, radar sets, TACANs and microwave terminals.

**A-2.18 ENGINE CONFIGURATION MANAGEMENT SYSTEM (ECMS).** A compliance accounting system for TCTOs issued against selected aircraft engines, missile engines, and auxiliary power units (APU).

**A-2.19 EQUIPMENT.** Equipment, or the term "equipment unit," is used frequently in this group of technical orders for ease of writing and reading the prescribed instructions. In most instances,

this term will be construed to mean complete end items, but on occasion, it will also refer to assemblies, subassemblies and components that are being processed within the maintenance shops. In general, the statement in which the term is used will imply what the intended meaning is for that particular application.

**A-2.20 FUNCTIONAL CHECK.** A functional check accomplished prior to use, on serviceable items withdrawn from supply stocks, and checks performed in the maintenance shops on repaired and over hauled items and on non-failure items that are removed for scheduled bench check and/or calibration.

**A-2.21 G081.** G081 provides a maintenance management system and a logistics command and control system for the C-5, C-130, C-141, KC-10, KC-135, C-9, and C-17 fleets. This system operates on a central database located at Tinker AFB utilizing an Amdahl mainframe. It provides fleet-wide visibility of status and location of aircraft, discrepancy history, TCTO status, MDD history, personnel, back shop production control, training, S-E, and AGE. Selected CONUS C-5, KC-10, C-130, C-141, KC-135 and C-17 home stations have access to the system. Outside CONUS main enroute locations have access and make updates to the system as well.

**A-2.22 GROUND COMMUNICATIONS-ELECTRONICS (C-E) EQUIPMENT.** Based radio, wire and including infrared; all radar and radiation aids for aircraft control and navigation, and ground based controls and guided missiles; radiating aids for fire control; electronic counter-measures and related radiation, re-radiation, and electronic devices; computers, data, or video processing equipment. (Excluded is the Real Property Installed Equipment (RPIE) outlined in AFI 21-116.

**A-2.23 HIGH-COST-HIGH-POWER ELECTRON TUBES.** Tubes assigned a work unit code in the applicable work unit code manuals are classed as high-cost high-power electron tubes.

**A-2.24 IN-PROCESS INSPECTIONS (IPI).** See paragraph 4-5.

**A-2.25 INTEGRATED WEAPON SYSTEM MANAGEMENT (IWSM).** Empowering a single manager (SM) (AFMC Handbook 63-3) with authority over the widest range of military systems program decisions and resources to satisfy customer requirements through the life cycle of that system. This is the AFMC management philosophy for all military systems and commodities.

**A-2.26 INTEGRATED MAINTENANCE DATA SYSTEM (IMDS).** An automated maintenance

information system for aircraft, engine, trainer, support equipment, missile, TMDE, and communications-electronic maintenance data. IMDS provides support for home base, deployed operations and depot level maintenance data.

**A-2.27 JOINT ELECTRONICS TYPE DESIGNATOR (JETD).** A JETD is a specific combination of letters and numerals, structured in accordance with MIL-STD-196(), provides a standard means of uniquely identifying electronic material by design configuration (see AFJI 60-105). Examples:

(1) System, set, central, or group used with, or part of more than one set, and general purpose test equipment: AN/FPS-35, AN/FYQ-4, AN/UPA-56, AN/USM-425(V)1.

(2) Groups, units, and test equipment which is designed as part of, or used with the procured with a specific set: QA-221/G, C-8717/G, TS-1996/FYQ.

**A-2.28 LIMITED LIFE HELICOPTER COMPONENTS.** Time change items that have a limited service life due to the higher number of repeated loads experienced during operation. Determine the life of the component by measuring the actual operational loads, the number of load occurrences and then testing the component to these loads until failure. The components require replacement and condemnation at a scheduled period of operating hours less than the failure hours determined during testing.

**A-2.29 LINE REPLACEABLE UNIT (LRU).** An item that is normally removed and replaced as a single unit to correct a deficiency or malfunction on an end item of equipment.

**A-2.30 LOGISTICS CONTROL NUMBER (LCN).** A number assigned to a location of a part within the hierarchical breakdown of a weapon system. The LCN is used in IMDS in the same way as the WUCs are used in legacy information systems.

**A-2.31 MAINTENANCE PLANNING.** This term pertains to the act of planning and programming known workloads to effectively use assigned manpower. At the GP/CC level, this concerns allocating manpower among the various maintenance functions and establishing appropriate priorities. At the maintenance control level, this concerns exercise of job scheduling and specialist dispatch control to effectively accomplish all known jobs in accordance with established priorities. At work center and crew level, this concerns scheduling and sequencing of individual tasks in the most logical and practical order of accomplishment to avoid wasted effort, to prevent job interruptions that can occur due to interference between tasks, and to

promote efficient work habits to assure the highest possible quality maintenance.

**A-2.32 MASTER JOB STANDARD NUMBER (MJSN).** A number assigned to each inspection and time change item on a weapon system. This number facilitates automated transfer of data between bases and information systems when the weapon system is transferred. It also facilitates automated forecasting of consumable items for system managers.

**A-2.33 MATERIEL GROUP MANAGER (MGM).** The single manager for a Materiel Group, who has the same responsibilities as a System Program Director or Product Group Manager for the assigned materiel.

**A-2.34 MINIMUM SIGNATURE.** A minimum signature for maintenance document purposes required by the 00-20-series technical orders consisting of the written first name initial, last name, and employee number of the individual (Exception: Contractors will use their FAA certification number). AFMC Depots may use a production stamp in place of the employee number. Electronic signatures may be used in lieu of the above requirements. However, using both initials or a complete first name and middle initial is not be considered in error. Exceptions to this are identified in appropriate TOs. The employee number for aircrew members is a MAJCOM option.

**A-2.35 NON-JETD (Joint Electronics Type Designator).** Used to denote electronic equipment not assigned a JETD. Includes: COMSEC material under the National Security Agency (NSA) Telecommunications Security (TSEC) Nomenclature System (i.e., TSEC/KY57) and items limited to commercial identification (i.e., Rixon CCU-432).

**A-2.36 NON-RECOVERABLE ITEM.** An item for which exchange accountability is not maintained by base supply and which can be disposed of at the user or maintenance shop level if repairs cannot be accomplished.

**A-2.37 NON-REPAIRABLE ITEM.** An item that cannot be repaired in any manner to restore serviceability. These items can also be classed as either recoverable or non-recoverable in the supply system.

**A-2.38 NOT REPAIRABLE THIS STATION (NRTS).** A status condition determined during shop processing of an item. It indicates that the item cannot be repaired at base level.

**A-2.39 ON-EQUIPMENT MAINTENANCE.** Maintenance tasks that are (or can be) effectively accomplished on the military system or commodity end item.

**A-2.40 OFF-EQUIPMENT MAINTENANCE.** Maintenance tasks that are not (or cannot be) effectively accomplished on the military system or commodity end item, but require the removal of the component to a repair shop and the use of repair shop resources. Does not include end items such as aircraft engines, electronic countermeasures, gun pods, etc.

**A-2.41 OPERATIONAL CHECK.** A functional check of an accessory, component, or system accomplished in its installed environment to ensure proper installation and operation.

**A-2.42 OVERHAUL.** The disassembly, cleaning, inspection, repair, or replacement of parts or components; reassembly; and test of any item or accessory in accordance with applicable technical orders, directives, or authorized manufacturers publications to provide an operationally safe reliable item.

**A-2.43 PRECISION MEASUREMENT EQUIPMENT LABORATORY (PMEL).** An activity that has possession of calibration standards and which is responsible for calibration and certification of precision measurement equipment.

**A-2.44 PREVENTIVE MAINTENANCE.** This term, or the single term "maintenance," as referenced in this group of technical orders, is the normal upkeep and preservation of equipment through systematic inspection, detection and correction of discrepancies to prevent failures, to verify serviceability, or to restore complete-serviceability of equipment that has been subjected to usage, wear and tear, or deterioration caused by environmental elements.

**A-2.45 PRODUCT GROUP MANAGER (PGM).** The single manager for a Product Group, who has the same responsibilities as a System Program Director or Materiel Group Manager, for the assigned products.

**A-2.46 PRODUCTION INSPECTOR.** An individual who is authorized to perform inspections and other related duties.

**A-2.47 QUALITY ASSURANCE.** The coordinated actions by all equipment maintenance activities to provide a program of inspection and control that achieves effective production inspection and testing; assessment of product quality and reliability; identification and notification of quality deficiencies; and standards of quality for material and technical data related to the use, maintenance, storage and handling of Air Force equipment.

**A-2.48 QUICK-ENGINE-CHANGE ADAPTING KIT.** Quick-engine-change adapting kits are stocked as a single item in the appropriate federal

supply classification. The kits consist of specific, miscellaneous, peculiar parts required to tailor quick engine-change parts or power packs for use on any of the several positions of a multi-engine aircraft, or on various production models in aircraft of a given type. These kits increase the interchangeability and thus reduce the number of different basic power and parts packs that must be procured and stocked.

**A-2.49 QUICK-ENGINE-CHANGE PARTS PACK.** Quick-engine-change parts pack, often referred to as quick-engine-change kits, are those groups or parts, as completely assembled as consisting of accessories, hardware, and electrical items. These parts packs normally do not include the engine, cowlings, propeller and certain other parts, most of which are of a government furnished parts (GFP) nature. The term quick-engine-change parts pack is also used to describe those loose replaceable component parts, accessories, hardware, and electrical items, stocked under a single part or stock number in the appropriate federal supply classification (FSC) and issued for use in connection with changes of jet engines that may not have a conventional, assembled unit or pack, such as provided for reciprocating type engines.

**A-2.50 QUICK-ENGINE-CHANGE (QEC) POWERPACK.** Quick-engine-change power packs are comprised of the quick-engine-change parts packs assembled on mounting stands with the engine, and any other items that are deemed necessary and practicable to facilitate aircraft engine changes in the shortest possible time. Items such as propellers and cowlings are normally not installed on the power pack unless they can be left on the power pack during installation on the aircraft.

**A-2.51 REAL PROPERTY INSTALLED EQUIPMENT (RPIE).** Items of equipment attached to or installed in real property. This equipment is normally programmed, procured, funded, and installed through the USAF military construction program. Real property installed equipment also includes missile support subsystems or items which are predominately composed of common standard commercial type items.

**A-2.52 RECOVERABLE ITEM.** Any item for which exchange accountability is maintained by base supply, and turn-in is required to clear the base supply due in from maintenance (DIFM) account.

**A-2.53 REPAIR.** The restoration or replacement of parts or components of materiel as necessitated by wear and tear, damage, failure of parts or the

like in order to maintain the specific item of materiel in efficient operating condition.

**A-2.54 REPARABLE ITEM.** Any item that can be removed from an end item, assembly, subassembly, or component for separate processing to accomplish any form of repairs needed to restore serviceability. Consider items on which some form of repair can and will be accomplished to permit reuse of the item as reparable regardless of the level of repair or whether the item is classed as recoverable or non-recoverable in the supply system.

**A-2.55 REPARABLE PROCESSING CENTER (RPC).** A function within production control that controls the processing within the maintenance complex for all assemblies, accessories, and components removed from end items. The RPC will either physically process these items directly through RPC, or process them under its control. The reparable processing center maintains sufficient control to monitor the quantity and type of assets that are reparable and their location; the estimated due out of items undergoing shop capability for any item that can enter the shop processing channels. A Reparable Asset Control Center (RACC) may accomplish these functions. The RACC is an integrated function consisting of RPC and the repair cycle support unit.

**A-2.56 SCHEDULED MAINTENANCE.** Known or predictable maintenance requirements that can be planned or programmed for accomplishment on short and long-range schedules. This includes accomplishing recurring scheduled maintenance inspection and servicing, complying with TCTOs other than the immediate action category, accomplishing scheduled time change item replacements, and correcting delayed or deferred discrepancies. It also includes modification and renovation projects that are programmed for depot accomplishment.

**A-2.57 SERIALLY CONTROLLED ITEMS.** Those items of equipment selected by the SM for which it is necessary to maintain TCTO configuration accounting and/or location information by item serial number to provide operating time data and status for logistics management and weapon system compatibility purposes.

**A-2.58 SERVICE LIFE EXPECTANCY.** The projected operational usefulness of an item in terms of operating time, cycles, or calendar age; as determined through engineering estimates or actual operational experience. The time or age figure (for example, 1000 hours or 36 months) used in relation to service life expectancy represents the point at which continued use of the item would

create a high probability of failure within a short span of time.

**A-2.59 SHOP REPLACEABLE UNIT (SRU).** A component of a line replaceable unit that has a distinctive stock number for which like spares are locally authorized and maintained to permit repair of the line replaceable unit. These components become repair cycle assets when processed separately and are subject to DIFM controls (TO 00-20-3). SRUs carry ERRC Codes XD2, XF3, XB3.

**A-2.60 STANDARD CONFIGURATION MANAGEMENT SYSTEM (SCMS).** A mechanized compliance status accounting system for TCTOs written against aircraft, missiles systems, and components selected for reporting as end items.

**A-2.61 SUBASSEMBLY.** A self contained unit of an assembly that can be removed, replaced, and repaired separately. These items are normally made available in supply stocks as separate units to support maintenance actions.

**A-2.62 SUPPORT EQUIPMENT (SE).** Support equipment includes all equipment required to perform the support function except that which is an integral part of mission equipment. It does not include any equipment required to perform mission operation functions. Support equipment should be interpreted as including tools, test equipment automatic test equipment (when it accomplishes a support function) field and depot support equipment and related computer programs and software. It includes the following major categories:

**A-2.62.1 DIRECT SUPPORT EQUIPMENT (DSE).** Equipment required to directly assist in supporting weapons systems, support training aircraft, subsystems and equipment, or provide a service to, or are an aid in the performance of maintenance on weapon systems and support/training aircraft while on the ground. This equipment does not have test, measurement or diagnostic capabilities as its principle function.

**A-2.62.1.1 POWERED AGE.** Those items of portable engine or motor driven equipment used in servicing, handling and maintaining weapon systems, support/training aircraft, subsystems and equipment. These items include but are not limited to portable engine and motor driven equipment in the following categories: generator sets, air compressors, blowers, portable hydraulic test stands, air conditioners, ground heaters, light carts, air cycle machines, gas turbine compressors, self-propelled bomb lift, etc.

**A-2.62.1.2 NON-POWERED AGE.** Those items of portable services handling and maintenance equipment that are not motor or engine driven

(with the exception of small electric positioning motors). These items include, but are not limited to, maintenance stands, A frames, platforms, aircraft jacks/tow bars, oxygen and nitrogen carts, trailers (munitions handling and engine), distribution boxes, hydraulic servicing carts, rectifiers, jet engines noise suppressers, etc.

**A-2.62.1.3 VEHICULAR SE.** Those items of SE of a vehicle nature used in support of the maintenance or launch of weapon systems and support/training aircraft. This includes such items as deicer trucks, high reach trucks, calavar, etc. It does not include those special purpose vehicles assigned to transportation civil engineering, fuel activities, and those towing vehicles assigned to maintenance activities.

**A-2.62.2 TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE).** Equipment used to troubleshoot, perform functional test and/or calibration on weapon systems, support/training aircraft subsystems, components, or the equipment used in support of these systems while on the ground. This category includes aircraft/engine test cells, shop test stands, NDI equipment, electrical test sets, precision measurement equipment (PME), weapon systems or aircraft mockups, generator load banks, and associated electrical/electronic supporting equipment, hydraulic test stands stationary, cabin leakage testers, etc.

**A-2.62.3 TOOLS.** Those items issued to a work center or to an individual in the performance of maintenance and inspection of weapon systems, support/training aircraft, subsystem, component or the supporting equipment.

**A-2.62.3.1 COMMON TOOLS.** Items of tools and tool equipment that are found in common usage such as those applicable to or used on a variety of equipment and components. These items include, but are not limited to, wrenches, sockets, hammers, screwdrivers, pliers, torque wrenches, etc.

**A-2.62.3.2 SPECIAL TOOLS.** Items of tools designed and developed to perform a peculiar maintenance operation on a specific end item of equipment or component. These items include but are not limited to wheel/bearing pullers, special jigs, special cradles, alignment devices, vacuum pumps, floor jacks/cranes, engine slings, and those special tools listed in applicable equipment technical orders.

**A-2.63 SUPPORT SYSTEM.** A composite of equipment, skills, and techniques that, while not an instrument of combat, are capable of performing a clearly defined function in support of an Air Force mission. A complete system includes all

subsystems, related facilities, equipment, materiel, services, and personnel required for operation of the system, so that it can be considered a self-sufficient unit in its intended operational environment. This system may furnish support to operating or support forces, weapon systems, command and control systems, or to other support systems.

**A-2.64 SYSTEM MANAGER (SM).** The SPD, PGM, or MGM in charge of a weapon/military system, product group, or materiel group.

**A-2.65 SYSTEM PROGRAM DIRECTOR (SPD).** The individual in an AFMC SPO who is ultimately responsible and accountable for decisions and resources in overall program execution. The single interface to the user who oversees the seamless process. SPD is the designated title for the single manager of a program who reports to a Program Executive Officer (PEO) or Designated Acquisition Commander (DAC).

**A-2.66 TECHNICAL ORDER COMPLIANCE (TOC).** Performance of work or inspections directed by technical orders. In contrast to TCTOs, it pertains to actions that are normally recurring in nature.

**A-2.67 TIME CHANGE ITEMS (TCI).** Items identified as having a fixed service life expectancy, and which must be replaced with a new or overhauled item after accrual of a specified number of hours or cycles of operation, or at the expiration of a given calendar time period.

**A-2.68 TIME COMPLIANCE TECHNICAL ORDER (TCTO).** Authorized directives issued to provide instructions to Air Force/contractor activities for accomplishing onetime changes, modification, inspection of equipment, or installation of new equipment.

**A-2.69 TRAINING EQUIPMENT.** For the purpose of the 00-20-series technical order, the term training equipment includes aircraft, missile and ground C-E equipment maintenance and operator training equipment in federal supply group (FSG) 69; and all maintenance training equipment, trainers, training aids, bench training sets, and standard Air Force material used at resident training centers, at field training detachments, or used in operational organizations for training purposes. Training equipment includes all trainers with a Standard Reporting Designator Code (SRD) prefix "T."

**A-2.70 TRANSIENT AIRCRAFT.** Aircraft not assigned to the landing station. Deployed aircraft with organic support are not considered transient aircraft.



A-2.71 TROUBLESHOOTING. The logical, analytical, and where applicable, a Technical Order prescribed procedure followed in isolating equipment malfunctions.

A-2.72 WEAPON SYSTEM. A weapon and those components required for its operation. It is a composite of equipment, skills, and techniques that form an instrument of combat which usually, but not necessarily, has an aerospace vehicle as its major operational element. The complete weapon system includes all related facilities, equipment, materiel, services, and personnel required solely for the operation of the aerospace vehicle, or other major elements of the system, so that the instrument of combat becomes a self-sufficient unit of

striking power in its intended operational environment.

A-2.73 UNSCHEDULED MAINTENANCE. Unpredictable maintenance requirements not previously planned or programmed, but require prompt attention and must be added to, integrated with, or substituted for previously scheduled workloads. This includes compliance with immediate action TCTOs, correction of discrepancies discovered during flight or operation of equipment, and performance of repairs as a result of accidents or incidents. Work that necessitates special depot scheduling will also be classed as unscheduled maintenance.



## APPENDIX B

## APPLICABLE TECHNICAL ORDERS AND SUPPORTING DIRECTIVES

**B-1 APPLICABLE TECHNICAL ORDERS.**

Technical orders related to this publication are:

| TO #         | TITLE   |
|--------------|---|
| TO 00-5-1    | AF TIME COMPLIANCE<br>TECHNICAL ORDER SYSTEM  |
| 00-20-2      | THE MAINTENANCE DATA<br>DOCUMENTATION SYSTEM  |
| 00-20-3      | MAINTENANCE<br>PROCESSING OF<br>REPARABLE PROPERTY AND<br>THE REPAIR CYCLE ASSET<br>CONTROL SYSTEM  |
| 00-20-5      | AIRCRAFT, DRONE,<br>AIRCREW TRAINING<br>DEVICES, ENGINES AND<br>AIR-LAUNCHED MISSILE<br>INSPECTIONS, FLIGHT<br>REPORTS AND SUPPORTING<br>MAINTENANCE<br>DOCUMENTS |
| 00-20-5-1    | INSTRUCTIONS FOR JET<br>ENGINE PARTS TRACKING<br>AND FATIGUE LIFE LIMIT<br>CONTROL  |
| 00-20-9      | FORECASTING<br>REPLACEMENT<br>REQUIREMENTS FOR<br>SELECTED CALENDAR TIME<br>CHANGE ITEMS  |
| 00-20-14     | AF METROLOGY AND<br>CALIBRATION PROGRAM   |
| TO 00-25-4   | DEPOT MAINTENANCE OF<br>AEROSPACE VEHICLES AND<br>TRAINING EQUIPMENT  |
| TO 00-25-107 | AFMC AREA SUPPORT<br>MAINTENANCE ASSISTANCE   |
| TO 00-25-108 | COMMUNICATIONS-<br>ELECTRONICS (C-E DEPOT<br>SUPPORT)   |

TO 00-25-115 LOGISTICS/ MAINTENANCE  
ENGINEERING  
MANAGEMENT  
ASSIGNMENT

TO 00-35D-54 USAF MATERIAL  
DEFICIENCY REPORTING  
AND INVESTIGATION  
SYSTEM

TO 1-1-17 STORAGE OF AIRCRAFT AND  
MISSILE SYSTEMS  
APPLICABLE DASH SIX TOs

**B-2 SUPPORTING DIRECTIVES.**

Additional publications pertaining to the USAF  
equipment maintenance program which prescribe  
Air Force policies are as follows:

| PUBLICATION    | TITLE  |
|----------------|--|
| AFI 21-101     | MAINTENANCE<br>MANAGEMENT OF<br>AIRCRAFT                               |
| AFI 21-118     | PRODUCT<br>IMPROVEMENT POLICY<br>(PIP) FOR OPERATIONAL<br>EQUIPMENT    |
| AFI 21-102     | DEPOT MAINTENANCE<br>MANAGEMENT  |
| AFI 21-103     | EQUIPMENT<br>INVENTORY, STATUS,<br>AND UTILIZATION<br>REPORTING        |
| AFI 21-116     | MAINTENANCE<br>MANAGEMENT OF<br>COMMUNICATIONS-<br>ELECTROINCS         |
| AFI 21-118     | IMPROVING AEROSPACE<br>EQUIPMENT<br>RELIABILITY AND<br>MAINTAINABILITY |
| AFMAN 23-110V2 | USAF SUPPLY MANUAL   |